ADDRESSING THE HEALTH PROBLEMS OF THE (INNER CITY) HOMELESS: A SYSTEMATIC REVIEW AND A CONTROLLED TRIAL

SIOBHAN REILLY

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ABBREVIATIONS

ACT	Assertive Community Treatment
ADRH	Alcohol Dependency Rehabilitation Hostel
CCT	Controlled clinical trial
CM	Case management /case manager
DETR	Department of Environment, Transport and Regions
DNA	Did not attend (appointment)
DOE	Department of Environment
DOH	Department of Health
DVA	Department of Veteran Affairs
ES	Effect size
FHP	Family Health Project
FHSA	Family Health Services Authority
FHW	Family Health Worker
GP	General Practitioner
HUD	US Department of Housing and Urban Development
ICM	Intensive case management
LFS	Life Fulfilment Scale
MINI	Mental Illness Needs Index
MRC	Medical Research Council
NHP	Nottingham Health Profile
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NIDA	National Institute on Drug Abuse
NIH	National Institute of Health
NIMH	National Institute of Mental Health
NS	Not significant
PHCT	Primary Health Care Team
PPHC	Princes Park Health Centre
QOL	Quality of Life
Quasi-expt.	Quasi-experimental
RCT	Randomised controlled trial;
RWJF	Robert Wood Johnson Foundation
SAMSHA	Substance Abuse and Mental Health Services Administration

ABSTRACT

The research has two central aims. The first is to assess the evidence for the effectiveness of health and social care interventions for homeless people; the second is to measure the effectiveness of a health advocate for temporarily homeless people in Liverpool.

The comprehensive criterion-based systematic review of publications between 1966-1999, revealed few health and social care interventions to have been evaluated within controlled studies. Only nine studies were considered to be of adequate methodological rigour; none evaluated interventions for homeless families. Characteristics considered worth highlighting were: integration within mainstream provision; multi disciplinary teams with inter agency collaboration; and a comprehensive and coordinated approach to support needy individuals, often using a case manager.

The empirical study measured the effectiveness of a health advocate for temporary homeless patients in a large health centre in inner-city Liverpool. A prospective quasi-randomised controlled trial was used to test the intervention. Patients (mainly homeless families) were sequentially allocated to intervention or 'usual care' groups in alternating periods of 1-3 months over a total intake period of 3 years. 400 adults and 438 children were included in the study of health service utilisation outcomes and 117 adults were included in the 3 month follow up study which examined health related quality of life outcomes (Nottingham Health Profile, Life Fulfilment Scale and Faces Scale).

This thesis concludes that the health advocacy approach was effective for homeless people who received early intervention: health related quality of life improved over time and less primary health care team resources were utilised compared to patients who received usual primary care. Both aspects of this thesis provide an original contribution to homelessness research and confirm the value of adopting controlled designs when testing interventions.

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PREFACE

The origins of the study lie in the difficulty of providing a high standard of health and social care to homeless people. The study is set in an inner city health centre in Liverpool. The largely working-class population suffers from high levels of unemployment and the city has been rated as the most deprived area in Britain (DoE, 1998). Princes Park Health Centre (PPHC), the setting of this study, is situated in Toxteth, a deprived area close to the city centre. In the early 1990s the practice list size increased, as did temporary registrations by homeless people. Unemployment levels were on the increase, with poverty and violence in their wake. More hostels opened in the area, especially for homeless people, single persons and families. There was an influx of Somali refugees, many of whom were allocated housing in the Granby area of Toxteth. The practice welcomed a link-worker and used the city interpreter service to deal with the language barrier; but post-traumatic stress disorder is difficult to deal with in any language and much of the work was 'out-of-hours' and fell heavily on the GPs. There was increased workload associated with the hostel patients and the refugees. Staff turnover at the health centre increased, with high levels of sickness and 'burn-out' among doctors and other staff. Being victims of stress themselves, the staff had begun to blame the victims of deprivation. A change was needed.

The needs of temporarily homeless patients were for social, psychological, medical and preventive care. It was clearly expensive and extremely difficult attempting to provide doctor-based care for temporary patients with overwhelming social distress who may only have been in the area for a matter of weeks. The GPs frequently found consultations with new temporarily registered homeless people quite overwhelming. They had no advance information whatsoever on such patients, and had to try to elicit relevant medical facts from amongst stories of complicated social and emotional needs. Often there would be more than one family member requiring medical attention. By comparison, a permanently registered patient would have medical notes dating back to childhood, would previously have completed a questionnaire giving the GP information about lifestyle, medical history and health risks, might already have a good relationship with the GP, and in most cases would be aware of facilities and services at the health centre.

One answer seemed to be to get away from the “medical model” by addressing the social and medical needs of the homeless patients directly, through different channels, in a coordinated manner. Advisers at the Family Health Service Authority (FHSA) agreed that additional resources were needed, but that they should not be spent on more doctoring. An opportunity arose to apply for ring-fenced funding for health care for homeless people, in order to set up a health advocacy project.

With the goal of improving the care of temporarily homeless people and reducing the stress levels of primary health care teams, three main options were considered when applying for funds to the health authority. The first option was to find a way of putting more skilled helpers into the hostels. A case could be made for trained counsellors, social workers or advocacy workers to be available to work opportunistically with hostel residents, attempting to make a smoother interface with local health and social services.

The second option was to build up a separate primary care service for the high-turnover hostel and homeless population, staffed by general practitioners and practice nurses on a sessional basis - perhaps with a manager to run the service. This 'specialist' approach has been used in several inner-city areas, mainly for single homeless men, and the 'roofless' population living literally on the streets (Warrier, 1993; Lowry, 1990).

The third option was to enhance the capacity of the existing primary health care team, providing extra resources to help with the particular, complex needs of homeless individuals and families. This was the preferred option for both the practice and the FHSA. A health advocacy model and a team approach for dealing with the social and medical needs of homeless people was proposed. Funding for a three year project was secured from the NHS Management Executive under section 56 of the NHS Act 1977, General Medical Services for Homeless People, via Liverpool FHSA. From the initial idea for the project which arose from the Health Authority’s deprivation strategy (1992), the key stakeholders in the project were the FHSA and PPHC. The building of this relationship was an essential element of the system changes necessary to respond to the findings of the study, as it was clear that any further funding would have to be found locally.

The resulting Princes Park Family Health Project (FHP) was one of 34 DoH funded national initiatives aimed at improving primary health care for homeless people. The grant was spent almost entirely on salaries. The project team was to consist of a full-time health worker, (in this case a registered general and mental health nurse), a support/research worker (full time), a secretary (15 hours per week) and two General Practitioners paid for one session per week each. The total cost was £37,600 per annum for three years, from December 1992 to December 1996.

AIMS OF THE FAMILY HEALTH PROJECT

1. To improve care for homeless people temporarily living in the practice area, offering health needs assessment, accessible health care, health promotion and empowerment through advocacy work.
2. To reduce the workload and stress of general practitioners and receptionists which is associated with the care of homeless people and hostel residents.
3. To evaluate the effectiveness of health advocacy work with homeless people and hostel residents, using patient-centred assessment of quality of life as well as workload utilisation statistics from the practice.

EXECUTIVE SUMMARY

The thesis has two central aims. The first is to assess the evidence for the effectiveness of health and social care interventions for homeless people; the second is to measure the effectiveness of a health advocate for temporarily homeless people in Liverpool. Both aspects of the thesis highlight the need for effective health and social services for homeless people, as well as providing a useful basis for designing further implementation studies.

The first chapter sets the scene for the two main elements of the thesis. It focuses primarily upon the health of homeless people, starting with a definition of the term homelessness and a description of the extent of the problem in Britain. The literature on health and homelessness is reviewed by concentrating on those studies which **assess the health needs of homeless people.** In particular the review focuses on those in temporary accommodation; the environmental conditions which they endure; the difficulties of accessing health services; and the types of services which have been provided for homeless people. This review indicates a sufficiency of needs-assessments in the literature and highlights a need for evidence on the most effective ways to meet the needs of homeless people. The problem of homelessness is not going to go away; it is an enduring problem. Providing more services for homeless people without evaluating the effectiveness of the interventions is not helpful. More research is needed to evaluate interventions in terms of both process and outcomes, utilising a range of research methods and developing indicators which are relevant to the goals of interventions with vulnerable and socially excluded homeless people.

In **chapter two**, the **literature on interventions** is reviewed further by way of a comprehensive criterion-based systematic review of publications between 1966-1999. The aim is to assess the evidence for the effectiveness of health and social care for homeless people. No previous systematic literature reviews or overviews of service evaluation for homeless people were available. The review has revealed that few health and social care interventions have been evaluated within controlled studies. Only nine of the 33 studies reviewed were considered to be of adequate methodological rigour

according to the criteria chosen; none of these evaluated interventions for homeless families. The review concludes that there is a profound lack of hard evidence as to which kinds of services for homeless families will result in better housing outcomes and improved health and quality of life. Very few services for the homeless are based on evidence of effectiveness. Those studies which lacked methodological rigour are also reviewed in detail, as there are lessons to be learnt from them when designing future empirical studies. Indeed, questions are currently being posed on how best to synthesise non-RCT evidence, 'without compromising the principle of well-designed RCTs as the gold standard', in relation to the developing Campbell Collaboration, a review body dedicated to assessing the effects of social and educational interventions (Oakley, 1999). There is clearly a place for a large UK controlled study of health care interventions for homeless people, and the preferred model emerging from the review as worthy of formal evaluation is that of a multi-disciplinary team providing integration to mainstream health and social services for homeless people in the UK.

Chapter three provides further discussion of methodological issues related to the evaluation of the effectiveness of interventions. Full evaluation of an intervention clearly requires the collection of both process and outcome data (Donabedian, 1980). This chapter explores process and outcome measurement relevant to the evaluation of interventions for homeless people. Just over a third (14) of the studies reviewed in chapter 2 attempts to measure the implementation process or the amount of services received by study participants. Where the measurement of process data is not practised, replication and application of findings to a different situation become more troublesome. The second section of this chapter highlights the significance of outcome measurement and describes the outcomes measured in the studies included and excluded from the systematic review. Consideration is then given to the second aim of the thesis; the empirical study. Chapter one has shown that the problems of homelessness are multi-faceted; any attempt to improve the health of the homeless must reflect this. The focus of this section, therefore, concentrates on **quality of life as a suitable outcome measure** for studies of homeless individuals. This section provides a synopsis of the concept of quality of life. A method which allows people to report on their quality of life in a way that has individual meaning for them is presented as appropriate for describing relevant aspects of the experience of the homeless. The method measures the *discrepancy between actual and desired life circumstances.* Previous studies of the quality of life of homeless people are then discussed in some detail; none adopted the "discrepancy" method of quality of life measurement. In all five different measures were used in the fourteen studies. It is concluded that there is no "gold standard" quality of life outcome measure, but the "discrepancy" methodology appears useful in a British health service research setting for a homeless client group.

Chapter four describes the **methodology of the empirical study**. The primary health care team at Princes Park Health Centre, an inner city health centre in Liverpool, was enhanced during the project by the employment of a designated non-medical health advocate (Family Health Worker; FHW). The health advocate's role was to assist the whole practice team to meet the needs of a transitory group of homeless individuals and families, without impairing its capacity to provide primary care for the existing 10,000 permanent patients. Two hypotheses were tested and this chapter provides an account of the methods and techniques adopted to explore them:

Hypothesis I: A health advocate working with a Primary Health Care team in an inner city health centre can improve the quality of life of homeless patients.

Hypothesis II: A health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers in relation to homeless patients.

The impact of a health advocacy intervention for a homeless population was tested using a quasi-randomised controlled design. Patients were sequentially allocated to intervention or 'usual care' groups in alternating periods of 1-3 months over a total intake phase of 3 years. Registration with the health centre took place either by 'self registration' (available to both intervention and control groups) or by 'outreach registration' (available to the intervention group only). Health related quality of life measured by the Nottingham Health Profile (Hunt et al, 1986), the Life Fulfilment Scale (Baker et al, 1994) and the Faces Scale (Andrews and Withey, 1976) and service utilisation were the main outcome measures used in this study. Questionnaires were administered on two occasions for homeless individuals: at registration and 3 months later (mean stay in the area was 2.9 months; 45% > 2 months < 6 months). Data gleaned from case notes were also available for each person included in the study. The validity and reliability of the health related quality of life measures and the statistical methods used in the study are reported and discussed.

Chapters five, six and seven present the **results from this study.** A total of 400 adults and 438 children were included in the study of health service utilisation outcomes and 117 adults were included in the 3 month follow up study which examined health related quality of life outcomes (Nottingham Health Profile, Life Fulfilment Scale and Faces Scale).

Chapter five describes the **characteristics of the population.** Seventy six percent of the adult homeless sample were female (mean age 27 years). Overall a quarter of adults (26%) lived with their partner or their partner and children. Two thirds (68%) of households consisted of families with children compared to 31% nationally; 48% were lone parents which is far in excess of the national average (6.6%; CSO, 1996). A large proportion were female single parents, who were homeless due to domestic violence (51%); only 2% of this sample were working. Some small differences were found between the three samples at baseline on two of the sixteen variables in this patient profile (type of temporary accommodation and reason for homelessness); this indicates that patient recruitment has influenced the allocation of patients to the groups in this study. Eighty one percent of children recruited to the study were from single parent families compared to 19.4% nationally (Haskey, 1996). Significant differences were found between the research groups in five of the nine variables in the child patient profiles (gender, age, type of accommodation, year registered and reason for homelessness). There was no difference between intervention and control groups in baseline self-reported morbidity.

Chapter six is organised into three main areas: I) **process data** related to the intervention are provided (contacts with and interventions provided by the health advocate); followed by **health service utilisation outcomes:** ii) primary health care workload contacts and interventions; iii) recorded **secondary health care contacts.** The health advocate had significantly more patient-initiated contact with the patients who were pro-actively registered by outreach compared to those patients who registered themselves at the health centre. Bivariate and multivariate analysis indicated that patients pro-actively registered by the health advocate had fewer contacts with primary health care than the control group. No differences were detected between groups on secondary health care utilisation.

Chapter seven addresses the first hypothesis of this study: those eligible to receive the health advocacy approach will have better **health related quality of life outcomes** than the patients receiving 'usual care'. The follow up study suffered a high attrition rate so the potential consequences of this are deliberated in some detail. It is concluded that the follow up sample can be considered as adequately representative of the full study sample both demographically and in terms of measured quality of life at intake to the study. The main section of this chapter presents separately the between group differences for each instrument, starting with the baseline score, the change scores and the effect sizes. Finally, multivariate analyses are conducted for each outcome measure, controlling for the potential influence of baseline differences and other potential confounders. The main results showed that individuals who were *registered pro-actively* by the health advocate when compared to people who received only usual primary care services gained significantly more fulfilment in four areas: "family life", "being happy with yourself", "area of residence", and "money". The multivariate analysis detected intervention effects *(for both intervention groups)* on the two fulfilment sub-scales: personal and material fulfilment. After controlling for baseline predictors, patients pro-actively registered and in receipt of the health advocacy treatment were significantly more likely than patients receiving 'usual care' from their GP to report improvement on "emotional distress" and "sleep problems" on the Nottingham Health Profile. The results from the analysis of the overall Faces Scale also confirmed that the group *pro-actively registered* by the health advocate felt better "about their life as a whole" at three months follow up compared to the control group. Thus all 3 quality of life measures demonstrated intervention effects related to health advocacy as an intervention for temporarily homeless patients.

The **penultimate chapter (chapter 8)** is organised into two sections. Part one provides a **critical discussion and reflection on the research process.** It focuses on how far this study has been able to evaluate the effectiveness of the service provided by the Family Health Project. Although it was possible to run this study as a prospective quasi-randomised controlled trial, there were certain limitations which threaten both internal and external validity. These limitations are discussed in terms of the inclusion criteria for the systematic review of previous published evidence. Attrition and between-group differences at baseline were the main threats to validity. This study achieved an acceptable overall follow up (at three months) response rate of 53% of possible subjects. However, groups were not entirely similar at baseline; the different registration strategies for the experimental and control groups, although sustaining external validity, complicate the interpretation of the outcomes for the different groups. Despite these weaknesses, the methodology of the current study presents a vast improvement on many of the studies which have evaluated interventions for homeless families.

The second section of Chapter 8 comprises a **discussion of the results** and is structured around four possible outcomes (Christensen, 1997) for each of the hypotheses tested in this study: a) accept the study hypothesis: *decision correct*; b) reject the study hypothesis: *decision wrong* (Type II error); c) accept the study hypothesis: *decision wrong* (Type I error); d) reject the study hypothesis: *decision correct*. The study has shown that the health advocacy approach was associated with significant improvements in the quality of life of homeless adults. Having allowed a non-equivalent recruitment strategy the study is flawed because the outreach sample have, when registered, not yet expressed requirement for health services. Nevertheless it is reasonable to infer from three highly deprived, highly morbid and reasonably comparable homeless samples that the health advocacy approach has positive effects on health related quality of life, and that early intervention is particularly beneficial. Hypothesis II is rejected for the self registered patients but the measurable benefit to patients was not achieved at the cost of increased workload at the health centre, despite the emphasis on pro-active health needs assessment which could be seen as 'demand-creating'.

The **final chapter** identifies the **implications of this study for practice, further research and policy.** In theory, the evaluation of health care should be part of a rational decision-making process involving an objective assessment of the degree to which different practices are successful (Seal, 1993). This chapter will focus on the three levels of this process: service or practice; research; and policy. Despite the methodological problems, the controlled study and the systematic review highlight the emerging evidence base in this area. The aspects of successful health care that are worth reiterating from this study are: the provision of wider access to health care by routine registration of homeless people; using outreach; early intervention; advocacy or case management; providing clients with continuity of care; and providing integration into mainstream services. These aspects closely reflect the conclusions from the systematic review.

The many US studies of effective health or social care for homeless people are not specific to the particular client group or exact treatment used in this study. Nevertheless, there is relevant evidence which highlights the importance *of case management for homeless people.* This is an important contribution of this thesis. If this evidence is neglected and if homelessness continues to be a problem to primary health care in Britain, researchers in the UK are unlikely to learn from, and build upon, the good and bad studies by researchers elsewhere, especially the US. This point is reflected in the developing aims of the new Campbell Collaboration: to overcome 'the parochial views of social science, whether defined geographically or by discipline' (Boruch, 1999 p11) and to avoid redundant research studies.

Both the systematic review and the controlled study have demonstrated that *interventions to improve the health of homeless people can be evaluated using experimental methods.* The context of the current study reflects the health service ethos of providing immediate services (illustrated by the General Medical Service funding for this project) rather than a longer term strategy of developing effective services. Done properly, this would require a stronger policy *commitment to research, evaluation, development and consequent dissemination.* It is clear that there is some evidence-based practice in services for homeless people but there is still a long way to go before health and social services managers have enough evidence to inform rational decision making.

1

HOMELESSNESS: RECENT DEVELOPMENTS, HEALTH AND IMPLICATIONS FOR SERVICES

This chapter will focus primarily upon the health of homeless people. In order to understand the need for effective health and social services for homeless people, which is the focus of this thesis, it is crucial to first define the term homelessness, its extent in Britain and to explain the link between homelessness and health. In view of the fact that the research study is situated in Liverpool, special attention will be paid to the environment within which the Family Health Project operated. The literature on health and homelessness will be reviewed, concentrating on those studies which assess the health needs of homeless people. In particular it focuses on those in temporary accommodation; the environmental conditions which they endure; the difficulties of accessing health services; and the types of services which have been provided for homeless people. The chapter will conclude with a discussion of the development of primary health care projects for homeless people nationally.

IDENTIFYING THE HOMELESS

Defining the homeless is often problematic as there is no universally accepted definition of homelessness and some commentators question the utility of the term itself (Watson, 1984; Nord and Luloff, 1995 cited in Widdowfield, 1998). "If policy cannot even define homelessness how can it hope to respond to it?" (Neal, 1997 p55).

If the problem is to be addressed by policy makers it is important to at least attempt to describe and to quantify the problem. Homeless people are not a homogenous group, and populations differ vastly from area to area, therefore it is important to describe the population in question. The homeless are not a particular group of roofless at a particular date but a range of people; from those without any accommodation to those inadequately housed. Different definitions identify different levels of homelessness. Widdowfield (1998) notes that

> "Given the moral and/ or statutory duty incumbent upon central and local government to tackle homelessness, it is not surprising that they adopt a fairly strict definition in order to minimise the problem with which they have to deal." (Widdowfied, 1998 p18)

Similarly it is hardly surprising that the voluntary agencies competing for limited resources adopt a wide definition in order to maximise the number of households identified. And so 'the point prevalence of homelessness, however defined, is a weak measure of how badly our poor are housed' (Blasi, 1990p209).

The 'official' homeless and 'unofficial' homeless

Central government through housing legislation limits the individuals and groups who are accepted as homeless by local authorities. Those accepted are the *statutory homeless*. The people who are 'unofficially' homeless, or the hidden homeless, range from those who are sleeping rough and are literally 'roofless', to those forced to share accommodation in unsatisfactory conditions with friends and relatives, or those who are in very poor quality accommodation.

The original Homeless Persons' Act was introduced in 1977 and gave local authorities responsibility to assess the needs of homeless people and to undertake to provide permanent housing for those accepted as being priority cases. The homelessness legislation (Part II of the 1985 Housing Act) gives local authorities statutory responsibility to investigate the circumstances of people who approach them for help with housing. Authorities must provide advice and assistance to anyone who is, or is about to become homeless. They must also secure accommodation for households accepted for rehousing on the basis that they are homeless, in priority need and not intentionally homeless. The official statistics, which record the number of households statutorily accepted as homeless under the provisions of the 1985 and 1996 Housing

Acts (see Box 1.1), grossly under-estimate the extent of the problem. They exclude: homeless who do not approach the local authority for assistance; those who do not pursue an application for rehousing; those not considered 'eligible' for assistance under the 1996 Act; those deemed intentionally homeless; those considered able to secure their own accommodation in the private sector and those not assessed as being in priority need (Widdowfield, 1998).

Box 1.1: Legal definition of homelessness

1. **Applicants are considered homeless if they fulfil one of the following**
- they have no accommodation
- they have a home but are in danger of violence
- they are living in emergency accommodation
- they are a family who normally lives together but are separated
- they have nowhere to place mobile accommodation
- they have accommodation which is no longer reasonable to use

2. **Those in priority need are:**
- people with dependent children
- pregnant women
- people who are homeless because of an emergency such as flood, fire or other disaster
- people who are vulnerable because of old age, mental illness or handicap or physical disability or other special reasons

3. **Finally applicants must fulfill both the following:**
- they are not intentionally homeless
- they have a local connection in the area where they are seeking housing

Source: 1977 Housing (Homeless Persons) Act consolidated in the 1985 Housing Act (part 3)

Following the 1996 Housing Act, the official statistics provide an even less accurate indication of the extent of homelessness. The 1996 Act abolished priority for homeless households on the waiting list for a council property and removed the duty on the local authorities to provide permanent accommodation for those households in response to the belief that homeless people were jumping the housing queue (Brown, 1994). The Labour Government in May 1997 however, restored this priority need through a secondary piece of legislation. This required local authorities to add homeless people in priority need as a new category of people to whom preference must be given in the allocation of council tenancies through the housing register. Homeless households continue to be ineligible for permanent accommodation (Widdowfield, 1998).

To complicate matters further, there is evidence (Thomas and Niner, 1989) that the Housing Act (1985) which requires accommodation for those in priority need, is not applied consistently throughout the country and authorities have considerable discretion over loosely defined key terms such as 'intentionally homeless'. There is also scepticism over whether or not the homeless statistics, produced quarterly by the Department of Environment, are reliable. Many authorities do not return information and when they do they may often be estimated (Burrows and Walentowicz, 1992). Shelter believes that the key factor which underlies the high levels of homelessness is the lack of affordable rented accommodation (opt cit). Hogan (1995) notes that the objectives of the Housing Act were never backed with adequate resources for housing authorities. Shortage of permanent lettings brought in a growth, rather than an end to, the use of temporary accommodation. The main reason for this shortage is the decline in the stock of rented housing and a fall in 'new-build' social housing (local authority and housing association owned) (see also page 52). Councils have therefore had fewer lettings to make available to homeless and other households.

There has been a threefold increase in the number of households in England accepted as statutorily homeless, from 53,110 in 1978 to 145,800 in 1990 (DoE, quarterly statistics). Shelter have estimated there were 1.7 million 'unofficial' homeless households in 1992 (Burrows and Walentowicz, 1992). In the USA in 1986 it was reported, following a survey of 25 cities, that 80% of the sample had reported an increase in the number of homeless families with children (US Conference of Mayors, 1986). These figure increased on average by about one third (US Conference of Mayors, 1987). In 1994 a national telephone survey identified formerly homeless people and produced life-time and five-year prevalence estimates of homelessness. 6.5% (12 million adults nationwide) of the respondents had been literally homeless at some point in their lives, and 3.6% (6.6 million adults nationwide) had experienced homelessness between 1989 -1994 (Link, 1995).

There are serious methodological difficulties in calculating the numbers of an ill defined, fluctuating and transient population which, to a great extent, remains hidden from view. The fact that there is no consistent definition of homelessness makes it difficult to interpret much of the research (Milburn and Watts, 1986). These difficulties should be borne in mind when interpreting homeless statistics.

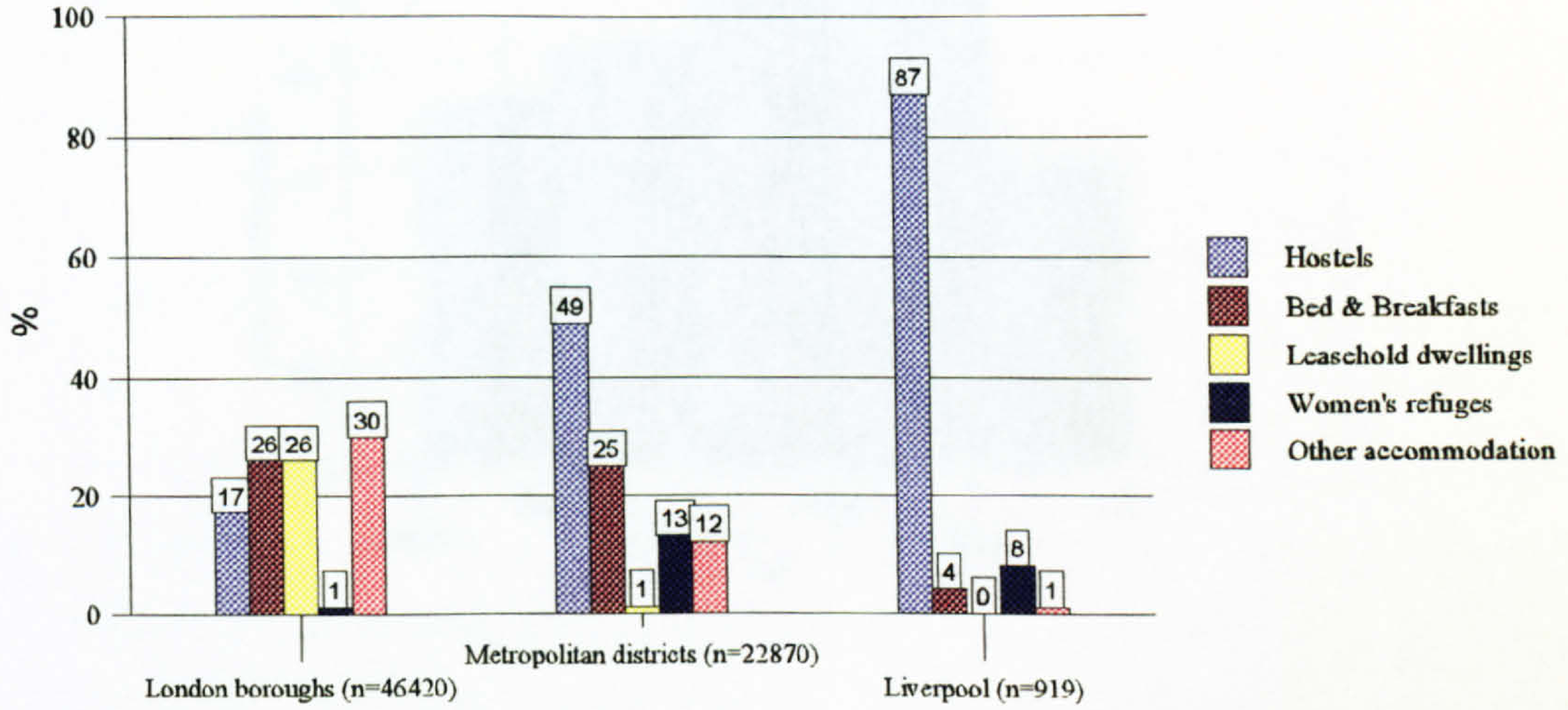
Extent of homelessness in Britain

The total number of households nationally claiming homelessness in 1995-1996 was 359,642 of which 143,621 (40%) were accepted (Tobin,1997). The respective figures for Liverpool were 2604 and 1195 (45.9%). Placing homeless families directly into permanent accommodation is increasing in some areas. Of the 143,621 households accepted as being homeless in 1995-96, 41% were re-housed directly, an increase of over 9% since 1991-2. This practice was particularly common in other Northern Metropolitan districts eg Oldham, where 86% of the accepted homeless were re-housed directly and 56% in Salford. In contrast this method was used for only 50 households in Liverpool (4% of total accepted). A further change in housing policy is to make arrangements for households to remain (or return to) the accommodation from which they were being made homeless. This may include accommodation found by the applicant, on a temporary basis, until permanent accommodation is secured by the authority. This method was also rarely used in Liverpool in 1995-6 (4%) compared to some London boroughs such as Camden, Greenwich and Lewisham (>50%), which again highlights Liverpool's reliance on temporary accommodation.

There are differences between local authorities in Britain in their management of the homeless, in particular, the use of hostel accommodation. One of the best known forms of temporary accommodation, 'Bed and Breakfast' hotels, are still widely used to accommodate homeless families, but they are no longer the main form of accommodation used. Since 1993 (Butler et al, 1994), the use of B&B hotels to provide short-term temporary accommodation for homeless families has levelled off although it is still used frequently in London and (figure 1.1: source Tobin, 1997). There may however be evidence that this trend is reversing again (Shelter, 1999a). In the main, homeless families tend to be temporarily housed in local authority owned hostels. Tobin

(1997) outlines the differences in homeless statistics between London and metropolitan districts of England in 1995-6 (summarised in figure 1.1 along with the comparable statistics for Liverpool).

Figure 1.1: Type of accommodation provided to households accepted as homeless



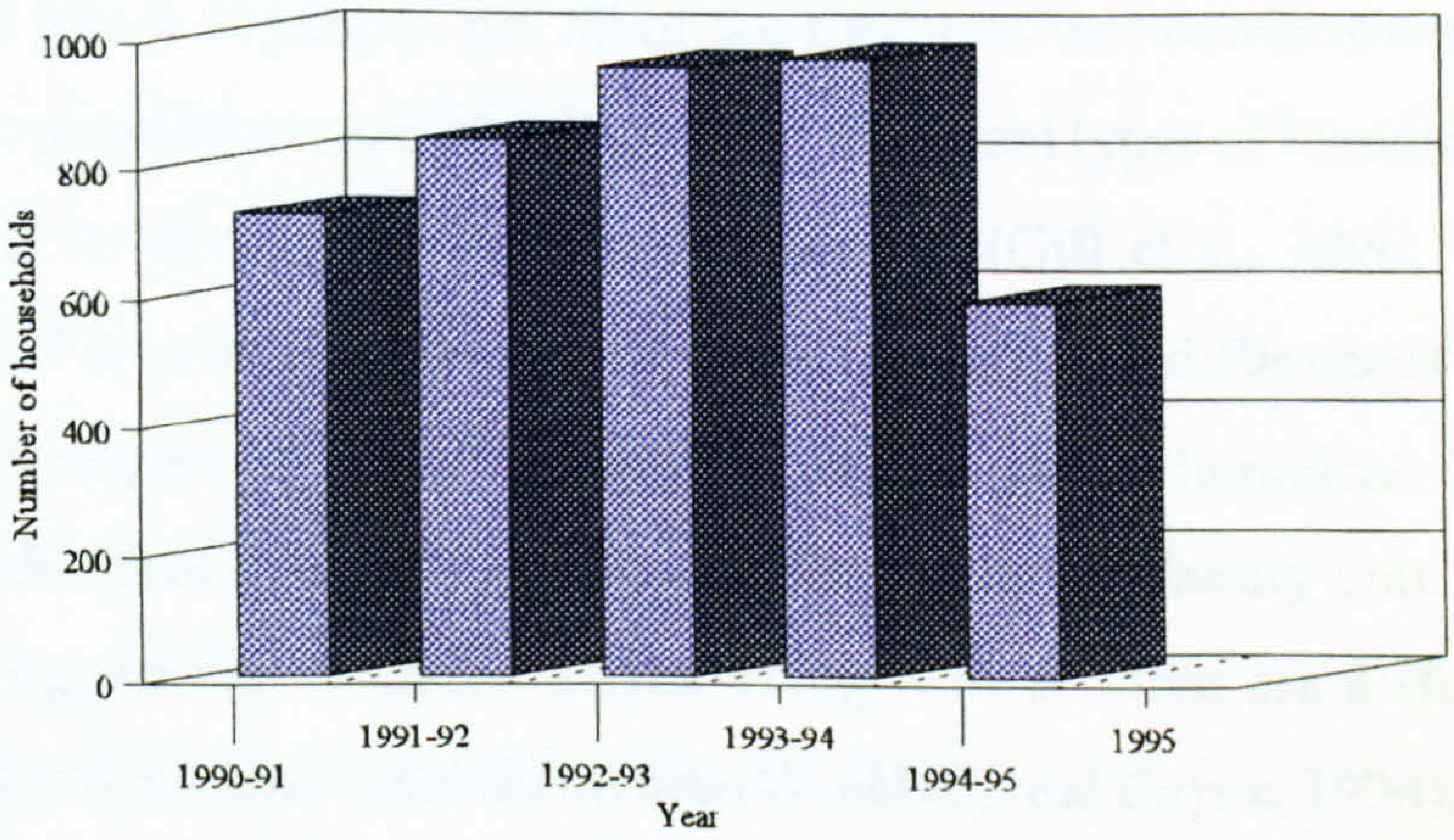
In 1997, 165,790 households were statutorily recognised as homeless by local authorities in England. Shelter estimates that this represents 400,000 individuals. Of these, 103,340 households were accepted as homeless in priority need (Shelter, 1999b). At the end of December 1997 there were 41,800 households placed in temporary accommodation by local authorities. Shelter estimates that 28,000 of these individuals were children. Over 90% of the statutorily homeless are single parents or couples with dependent children or pregnant women (Lissauer et al, 1993). In the US it has been estimated that families represent one-third of the homeless population (Weinreb and Rossi, 1995). Given the difficulties with defining homelessness, estimates of the numbers of homeless in Britain are widely disparate and these figure are likely to under report the prevalence as government agencies generally give the lowest estimates.

Extent of homelessness in Liverpool

The focus of the present study is on one sub-population of the homeless: the statutorily homeless placed in temporary accommodation (usually) by Liverpool City Council.

While this study was not equipped to address all the limitations of the research in this area, the information will also be useful for describing this particular segment of the homeless. Nevertheless, it is not appropriate to assume that this sample is representative of the homeless in general.

Figure 1.2: Homeless households accepted by Liverpool City Council (1990-1995)



Liverpool City Council is responsible for 6 hostels for homeless people and these can provide accommodation for up to 153 people at any one time (Tobin, 1997). Figure 1.2 shows the number of families accepted as homeless by Liverpool City Council from 1990 to 1995 (Liverpool City Council, 1996). There was a steady rise in the number of homeless families from 1990 to 1994 which parallels national trends. Tobin (1997) showed that Liverpool, when compared with the rest of the country accepts a higher proportion of homeless applicants and a higher proportion of these are housed in temporary accommodation. Funding for the Family Health Project, which is evaluated in this thesis, was obtained in 1992 when the number of homeless families in the area was reaching a peak. However after significant changes in Liverpool City Council's homeless policy in 1994 (discussed in more detail in chapter 8), the number of homeless people that the council accepted that they had a duty to house dropped significantly (by 39%) in 1995 (DoE, quarterly statistics, 1990-1995).

HEALTH OF HOMELESS PEOPLE IN TEMPORARY ACCOMMODATION

Homeless in temporary accommodation

Because homeless people, like the rest of the general population, do not comprise a homogeneous group of people, not all of the literature on homelessness and health is relevant to the population studied in this thesis. Different types of homeless people may be more likely to develop certain health problems (Gill et al, 1996; Winkleby and Boyce, 1994). For example, Bhugha (1996 p41) points out differences in the stresses and coping strategies of homeless families and the single homeless. In families, in addition to individual stress there is also the impact on the family unit. There is some evidence to suggest that homeless adults living with children are different from and more vulnerable than other homeless adults (Winkleby and Boyce, 1994). The following section will concentrate on those who fall within the definition of the 'official homeless' population described earlier. Consideration of such differences would allow health and social service provision to be tailored appropriately, resulting in more effective and less costly interventions.

Hostels are normally provided by a local authority or other organisation for a specific groups such as homeless families. Residents generally have to share amenities, with families usually sharing one room; there is often some sort of management presence. Refuges for women fleeing from domestic violence may be regarded as a special form of hostel; many are run by Women's Aid groups. Bed and breakfast hotel accommodation is provided in the form of one or more rooms (depending on family size) normally furnished as bedrooms. Here the resident has no security of tenure whereas in hostels and women's refuges residents are likely to be licensees (Thomas and Niner, 1989).

The concept of health

Health is an extremely complex concept and is closely related to other complex concepts such as well-being and quality of life (Donovan et al, 1993) (see also chapter three).

Some researchers tend to favour self ratings of present health; personal evaluation of physical condition; feelings of anxiety, nerves, depression; feelings of general positive affect; and future expectations about health; whereas some policy makers on the other hand favour objective indicators: limitations in activities of daily living, confinement to bed due to ill health (Allison et al, 1997). The multiple influences upon patient outcome require a broad model of health which incorporates the broader social, psychological and physical concepts of health (Bowling, 1997). Within this broad model of health, shelter is seen as a pre-requisite for health. A home is more than shelter against the elements; it forms an important part of security and sense of belonging. Health is not merely the absence of disease as in the biomedical model. The World Health Organisation's (1993) ideal of Health for all by the Year 2000, to which the UK government is a signatory, employs a broad positive model of health which emphasises assisting the individual to increase control over and improve health. Target 24 sets objectives for the provision of 'healthy houses' for Europe (1993)

It is commonly argued that certain housing environments are harmful to health (Smith et al, 1993). Smith and colleagues highlight how analysts in a range of disciplines from medical sociology to microbiology have with great difficulty, sought to identify the biomedical and social psychological mechanisms required to explain these links causally.

Nevertheless, there is much evidence to suggest that homeless people have complex social needs and relatively high morbidity (Connelly and Crown, 1994). Homelessness can lead to particular physical health problems which require medical intervention; at the extreme end tuberculosis (Patel, 1985) but more commonly, infections (Conway, 1988; Shelter, 1998). Homelessness is a health issue in several ways other than the obvious biomedical. There are many psycho-social implications, which are outlined by a number of researchers (Watson, 1986; Moore, 1990; Conway, 1988). Poverty has its effect on health not simply through lack of income but also inducing feelings of powerlessness and isolation; the homeless are likely to suffer these in great measure (Wilkinson, 1990).

Measurement of health

Although the adverse effects of homelessness on health have been well documented, real difficulties are involved in studying the effects of a complex social phenomenon such as homelessness. As homelessness is part of multiple deprivation, it is difficult to disentangle the effect of the loss of a permanent home from the multitude of other factors which could be adversely influencing health and health outcomes. It is difficult to find any research which examines the possible cause and effect relationship between homelessness and ill health; exact quantification of this relationship is difficult because of methodological problems (Mant,1993). Lowry (1991) identifies how much has been established by scientific investigation and sensible observation and notes that the lack of firm association might provide a loophole for governments not to fund remedial programmes. Many studies and commentators describe the impossible situations which many homeless face; Pleace and Quilgars argue that,

> "although the direct evidence is not conclusive, it is not unreasonable to assume that homelessness poses an increasing risk to health as the environment in which someone is homeless becomes more and more unfit for habitation" (Pleace and Quilgars, 1996 p35).

Homelessness may not, according to Pleace and Quilgars (1997) represent a cause of poor health, but rather an increased risk to health along with the range of other problems which are also found with other families in impoverished circumstances but with more permanent accommodation. These health inequalities increase their risk of ill-health, eg., breakdown of relationships or families, single parenthood, unemployment and poverty (Acheson, 1998; Drever and Whitehead, 1997; Benzeval et al, 1995; Black et al, 1992; Davey Smith et al, 1990).

There are however some major differences between the everyday circumstances of families in temporary accommodation and those impoverished families in more stable housing. Homeless people lack control over their everyday living environment, they lack certainty and the ability to plan where they might be in a few months, and they may lack even basic facilities to cook and keep clean (Hayden and Bose 1991). In interviews with 160 homeless women in London in the early 80's, Watson (1986) noted frequent reports of feelings of diminished self-esteem, depression and loss of control over life events. Being placed in an institution is likely to erode their identity by the frustration of not being able to cook when they want, privacy may be violated by managers, cleaners or other residents; others' hygiene standards may not be their own; all these lead to loss of control. The accumulation of problems may lead to apathy, withdrawal and depression, resulting in a deterioration of personal habits and in some cases severe illness (Moore, 1990). The lifestyle that accompanies homelessness can serve as a barrier to positive health practices. Minimal control over diet, sleeping facilities, reduced opportunities for personal hygiene, and lack of transport may impair the exercise of appropriate health behaviours (Jezewsk, 1995). Hostels may serve as a 'locus of social relationships and their physical environments create opportunities for social interaction' (Bunston and Breton, 1992) but they are not homes. Psychological variables such as learned helplessness and diminished self-esteem have also been found to have a negative effect on the health practices of homeless people (Flynn, 1997).

As a result of the significant increase in homelessness during the 1980's, several reports on the effects of homelessness on health were produced (Connelly and Crown, 1994; Standing Conference on Public Health, 1994; Health Visitors Association, 1988; Conway, 1988). In 1994, the association between homelessness and ill health was reviewed by a working party of the Royal College of Physicians (Connelly and Crown, 1994) who identified major health problems for the homeless including: poor health among children (sleeping, eating and behavioural problems); increase acute illness and hospitalisation; chronic ill health; poor mental health and increased risk of accidents in children. They also noted the decreased uptake of preventative services and increased levels of GP consultation. Connelly and Crown also note that the two main aspects of the relationship between family homelessness and health, which have featured in the relevant literature, are health status and health service utilisation.

The environmental conditions of temporary accommodation have implications for homeless people (Standing Conference on Public Health, 1994). Information on the health experiences of homeless families in temporary accommodation have been described in a number of reports towards the end of the 1980s (Conway, 1988; Health

Visitors Association, 1988). Of the 57 women interviewed in Conway's report, over half felt that their health was 'generally worse than before they had lived in a hotel' (Conway 1988, p42). Conway also noted that families often had to share bathroom and cooking facilities with ten or more other people and nearly half the households were estimated as being over the legal standards for crowding (Conway 1988,p31). Overcrowded conditions can often lead to an increase in infectious diseases especially gastroenteritis, skin disorders and chest infections (Shelter, 1998). Similarly, of the 66 parents living in temporary accommodation in London included in another study (Barnardo's, 1997), 51% rated their own health as being worse than before they moved into temporary accommodation. 53% rated their children's health as having deteriorated. A further study of 78 families living in temporary accommodation in Portsmouth found that 83% of families reported detrimental effects on their health (Hayden and Bose, 1991). The Audit Commission (1989) stated that bed and breakfast hotels are 'unsuitable for family life'.

Many of the initial reports on the relatively poor health status of homeless households in temporary accommodation were based on case reports by health visitors and other health professionals (Drennan and Stearn, 1986; Stern, 1990; Lovell, 1986; Parsons, 1991) and by housing commentators (Conway, 1988). There is however a consensus that the major health problems for homeless families include: infectious diseases, accidents, developmental and behavioural problems in children, problems of pregnancy (Connelly and Crown, 1994), increased hospital admission or attendance (Lissauer et al, 1993). Stress and depression may be generated by boredom, isolation, overcrowding and poor living conditions. Multiple psychosocial stressors associated with homelessness are likely to weaken coping strategies. The enforced mobility which homeless people face will also reduce any social support networks which they have and may lead to feelings of insecurity and anxiety, loss of a sense of identity and self worth (Buckner et al, 1993). The length of time spent homeless has been found to be inversely associated with self-reported health status (Castle White et al, 1997). Although there is a lot of evidence that the living environment of homeless people puts their health at risk, Fisher and Collins (1993, p2) highlight a point made by many, that the pressures imposed by homelessness "can make health a very low priority". Diet is often neglected whilst living in temporary accommodation (Conway,1988; Stitt et al, 1994). Homelessness may be seen as a transitory period and therefore standards may drop. A separate Liverpool study of homeless families (Coufopoulos and Stitt, 1996) has revealed that this group had a dietary intake significantly inferior to the Dietary Reference Values (Department of Health, 1991 cited in Coufopoulos and Stitt, 1996). Added to this the often inadequate primary health care and low uptake of preventative services such as immunisation (Victor, 1992; Stearn, 1986; Riley-Eddins, 1995; Fierman et al, 1993); it is not surprising that those who face homelessness are also likely to face health risks. A study carried out in the Department of Obstetrics at St Mary's Hospital in London found that homeless women were more likely than other local women to be younger, have later booking dates, to smoke more and have a history of previous still birth (Greve, 1991).

Many homeless are escaping violence. Vostanis et al (1998), in their cross sectional study on homeless 113 families in Birmingham found that the most common reason for becoming homeless was to escape from violence, either by a partner or ex-partner (50%) or by neighbours (35%). Many others are homeless due to oppression and war. A lack of a safe comfortable home and not having freedom to make choices has detrimental effects on physiological and psychological well-being. The support systems of homeless people are likely to be less effective, particularly as many are leaving relationships and families. Nyamthi (1997) notes that homeless women are more likely to seek support from individuals who are least likely to provide psychological well being.

Only a few British studies have a comparative element and these tend to focus on London homeless, comparing the health of a homeless population with that of the general population, although more recently Vostanis et al (1998) conducted a cross sectional study on homeless families in Birmingham (n=58) and compared them with local housed, low income families (socioeconomic class V) (n=21). Victor (1992) in her survey of 319 households (65% with children) living in B&Bs in London found high levels of acute (10%) and longstanding limiting illness (34%). This was found to be very similar to that of the housed population in these areas. However, a much higher level of mental health problems (using the General Health Questionnaire: GHQ-12; a self administered screening test designed to detect non-psychotic psychiatric disorders) amongst the homeless households was found within the homeless sample (45%) compared with the housed population (18%). Similar results were found by Vostanis et al (1998): on the basis of GHQ scores the rate of homeless mothers who reported mental health problems of clinical significance was 52% (the rate for comparison mothers is not reported for baseline). These two groups were also interviewed one year later when the homeless sample had been rehoused; mental health problems in the homeless sample decreased significantly to 26% (p=0.002) compared to 5% in the comparison sample and up to 20% for women of a similar age in the general population (Goldberg and Huxley, 1992).

Children's health

The material circumstances of temporary accommodation have implications for the health of children (Barrie-Foy, 1997). Conway (1988) found that nearly 50% of the children under five suffered from diarrhoea while living in hotels and over a third had chest infections. This was all linked to unhygienic surroundings, including unclean food preparation areas, sharing amenities such as the bathroom and toilet. Thomas and Niner (1989), in their study of temporary accommodation, reported that 28% of respondents reported that their children's health had deteriorated since living in temporary accommodation and that they were more susceptible to infections and suffered increased colds, diarrhoea and stomach problems. The Child Accident Prevention Trust estimate that children in multi-occupancy accommodation are twice as likely to have an accident than other children. Emergency admissions to hospital are two and a half times greater and the risk of dying in a fire is ten times greater (Child Accident Prevention Trust, 1991).

A study of homeless children in admitted to St Mary's Hospital, Paddington Green Children's Unit, St Leonard's Primary Care Centre and the Royal Free Hospital, London found high admission rates among homeless children may not necessarily reflect the severity of their health problems. Examining the admission of 70 homeless children, it was found that the decision to admit by doctors in 77% of cases was influenced by 'social factors', which included family circumstances and accommodation, compared with 43% of a control group (non-homeless children). Overall, the homeless children had fewer pronounced health problems than housed children who were admitted, but unlike any of the housed children, three homeless children (4%) died of overwhelming infections (Lissauer et al, 1993).

Studies in the US of homeless families have found low birth weights, poor development and high levels of serious illness of serious illness among children. Muller et al (1988) found 49% of children in US shelters for homeless people had acute or chronic health problems. Zima et al (1994) found that 78% of 169 homeless children suffered from behavioural problems, depression or 'severe academic delay' and Eddins (1993) found 61% of homeless children had a 'developmental lag'. Buckner and Bassuk (1997) suggest that the mental health needs of homeless children are not being attended to, either because of the lack of available services, barriers to treatment, or failure to recognise need.

A study done by National Health Care for Homeless Project in nineteen US cities (Wright, 1990) showed that homeless children from birth to 2 years of age were twice as likely to be treated for upper respiratory infections, more than three times as likely to be treated for gastrointestinal problems, four times as likely to be treated for skin conditions and 10 times as likely to be treated for poor dentition, compared with a national sample of comparable ages. They also exhibited more chronic illness.

Homelessness, mental illness and substance abuse

Previous research among homeless people has shown there is high prevalence of psychiatric morbidity ranging from 30-50% and rates of substance abuse between 15 and 20% (Scott, 1993; Access to Health, 1992a; Marshall and Reed, 1992; Timms, 1989; Adams et al, 1996; Geddes et al, 1996; McAuley and McKenna, 1995). Both the US and Britain have debated the proportion of homeless people with psychiatric problems and the factors in contributing this problem (Cohen, 1994). The prevalence of alcohol abuse among the general homeless population in the US is at least 40%, and an additional 10% abuse illicit drugs, (Fischer 1991). As with most research on the health of homeless people, results are dependent on the populations sampled, the approach or definitions adopted by different researchers. Most studies however, concentrate on single homeless people and those living on the streets.

OPCS (1994) carried out a survey of psychiatric morbidity in Great Britain in 1992 which included homeless people from a large number of establishments. The samples are split into homeless from hostels, private sector leased accommodation, night shelters and those who sleep rough. The second group, private sector leased and short life accommodation which is often used to house homeless families (DoE, 1993) (n=268), are likely to have the most comparable demographic characteristics to the population studied within this thesis. 48% were between 25 and 34 years and a greater proportion were couples living with their children: 49% lived with their partner and children and 18% were lone parents; 80% were not working. The four most prevalent "neurotic" or psycho-social symptoms among this group were fatigue, sleep problems, irritability and worry; proportions ranged from 49% for fatigue to 37% for worry. These were found to be more prevalent than the private household study. 36% were found to have a neurotic health problem (measured by the GHQ), which was two and a half times that found in the sample of the private households survey (14%). The prevalence of psychosis was estimated at 2%, mixed anxiety and depressive disorder 14%, depressive episodes 13%, alcohol dependence 3% and dependence on non-cannabinoid drugs 1%. 38% self reported a physical or mental long standing illness. Over 95% of this sample knew of a doctor or medical centre they could go to if necessary and were registered with a doctor.

Victor (1992) in her survey of the health status of the temporarily homeless population of North West Thames region found that 45% of the homeless respondents showed significant mental morbidity as measured by the General Health Questionnaire; twice that for the region as a whole. Similar results were found by Vostanis et al (1998).

Despite a number of recent texts which review the literature on homelessness and health (Connelly and Crown, 1994; Fischer and Collins; Pleace and Quilgars, 1996; Bhugra, 1996), there is still a lack of any systematic literature on the health effects of different types of temporary accommodation. Also much of the British research is London based and therefore biased towards the single people and the (temporary) housing policies particular to London. Most studies are based on samples of homeless people in particular settings; very few look specifically at homeless people in temporary accommodation. Such studies, whilst convenient for research purposes, may result in findings that are prone to selection bias. Most of the United Kingdom studies are at best small scale, vary in sampling, data-gathering procedures, item validation, diagnostic classifications, analyses and presentation of results. At worst, they are anecdotal and "heavy with moral outrage, but light on analysis" (Pleace and Quilgars, 1997 p150). And, they have argued, continual comparisons of the homeless populations with the general population are counter-productive and ultimately even dehumanising for homeless people (opt cit).

HEALTHCARE FOR HOMELESS PEOPLE

The difficulties of accessing health services

Registration with a GP is the main means by which people in the United Kingdom receive medical services, health care, health promotion and maintenancy services. Access to secondary health services is on the whole channelled through GPs, or less frequently, through accident and emergency departments. Without access to a GP, basic medical care and referral to more specialist care is difficult. Permanent registration gives full access to a GP, whereas temporary registration, which is often used for homeless patients, gives access to a GP but without the back up of the continuing medical records which are retrieved for permanently registered patients. The transience of homeless people's lives gives rise to problems with this pattern of care. Homeless people may be suspicious of those in authority, including the GPs and may delay help-seeking until a problem has caused severe ill-health. Appointment systems and receptionists may further alienate homeless people from health care (Hinton, 1994; Access to Health, 1992b).

Difficulties for single homeless people in accessing health services have been reported (Williams and Allen, 1989; Stern and Stilwell, 1991; Hinton 1994; Pleace and Quilgars, 1997). Part of the problem of access to health care for homeless people may be to do with the attitudes of health service staff. But Stern and Stilwell (1991) found that of those single homeless who were not registered, 82% had never attempted to do so, mainly because they expected to be refused. Others said GP registration was a lower priority than finding a bed for the night or getting a hot meal. There is less evidence to suggest that families have difficulty registering with general practitioners. Often studies which have focused on families have found higher levels of registration (eg Victor, 1992) although this is usually with previous GPs in other districts. Fisher and Collins (1993) describe the reluctance of homeless people to use GP services, even if registered, coupled with the unwillingness of some GPs to accept them, as a 'cycle of reluctance'. This and the sense of powerlessness that often comes with being homeless (discussed above), can be linked to the complexity of the health impact on the homeless which is not just biomedical, but psycho-social too.

It has been suggested that the difficulties of obtaining primary care may increase use of accident and emergency services, for example, Powell (1988) found that the appropriateness of A&E consultation was as low as 29% among homeless people, compared with 75% in the general population. However, there is also counter evidence to suggest that A&E is used appropriately (Stern and Stilwell, 1991). Pleace and Quilgars sum up the position of this client group in the following quote:

> "Homeless people are therefore disadvantaged by being homeless and by being in competition with everyone else who needs assistance from inadequate services" (Pleace and Quilgars, 1997 p156).

Homeless people are more likely to present with a disease rather than at prevention or screening stages which also may increase use of accident and emergency departments for health care needs which may be more appropriately dealt with by primary care (North et al, 1997). North et al in their study of people who visited University College Hospital A&E in London, found that large numbers of homeless adults used A&E inappropriately. They calculated that 7% of all visits to A&E were made by homeless adults (n=1873); 78% of these were by male attenders. They found that hostel residents, who may have had better access to health care facilities compared to those of no fixed abode and those living in B&Bs, made more appropriate use of A&E. This study also estimated the cost of tests and medicinal treatments and the number of visits for homeless attenders. They found that 30% of total costs associated with the treatment of homeless people derived from inappropriate attendances. It was estimated that the presence of a health worker (or access to a local GP surgery) in terms of the saving to the hospital services would represent a total yearly saving of £91,000 to the A&E department alone. Even if these visits were redirected to General Practice, net savings of up to £60,000 could still be made to the health service as a whole, in just one year. They noted that

> "These savings could be made without any structural changes to the health service, but simply by ensuring that homeless people are able to register with a GP and have access to primary health-care services" (North et al, 1997 p63).

Difficulties in providing health care

When homeless people do manage to access health care services the problem of high resource utilisation is often apparent. This combined with a poorly resourced health service, ambivalent attitudes of some staff and the impact of health and social policy can create difficulties in providing health care.

High service utilisation[1]

Victor (1992) found that in addition to the increased health problems, general practice consultation rates in this group were twice the national rate of consultation, thereby indicating ill health. 29% of the 319 homeless people in Victors study had consulted a GP in the previous 2 weeks. Similarly, Gill et al (1996) found that overall 26% of homeless people in private sector leased accommodation (described earlier in 'homelessness, mental illness and substance abuse' section) consulted a GP in the previous 2 weeks for any reason; 42% of those with a neurotic disorder and 16% of those with no such disorder. This compares to 16% nationally (ONS, 1996).

High stress

The difficulties associated with caring for homeless people may also impact upon health care providers who may be under high stress due to higher workload, language problems, the heterogeneity of homeless populations. On the whole, little attention has been paid to the service providers who work with this population. In the UK those who work with the homeless often work in small teams where they may feel isolated from other professionals of their own disciplines. Other factors which are likely to induce stress are: pressure on staff; coordinating multi-agency involvement; being unable to offer the quality of care they are committed to when resources are limited; and being on the receiving end of anger, rage or violence (Stoter, 1997).

Mowbray et al (1991) identified a paucity of studies on staff characteristics and attitudes, including how people feel about their jobs, about the clients they are serving and about the effectiveness of their interventions. One of the few studies which

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[1] Service utilisation is discussed further in chapter three.

addresses this issue (Hagen and Hutchison, 1988) surveyed personnel who worked with homeless people in Albany, New York (n=73; 51% response rate) and investigated job stress and burnout. They define burnout as emotional exhaustion caused by demanding interactions with clients and resulting in workers' attempts to distance themselves from clients, which may result in callousness and emotional hardening towards the client (Maslach, 1982 cited in Hutcheson and Hagen, 1988). The respondents, who were mostly female, worked primarily in homeless shelters in the voluntary sector (74%), on average had worked with the homeless for 2 years and were in the main inadequately trained for the responsibilities given. A quarter of all homeless workers considered themselves burnt out although few felt that the job was making them callous or depersonalised. In Mercier and Racine's (1995) descriptive study of a case management programme for homeless women with substance abuse problems, the investigators were puzzled that only 20% of all contacts were made in the community. One explanation they give, is that the workers may have responded to their clients' severe situations by withdrawing or seeking to normalise their work and control their environment by making their roles more bureaucratic. Similarly, in a further study project staff were inappropriately concentrating on clients who were easier to engage (Mowbray et al, 1993). This problem might not confined to just workers; Cohen (1994) notes that 'agencies may skim off the least difficult cases'. Mercier and Racine (1995) argue that in view of the sheer number and severity of problems associated with the homeless, special attention should be paid to the support and supervision of health and social care workers.

Attitudes of staff

Hinton (1997) conducted 59 semi-structured interviews with staff in health promotion departments, in residential projects, in organisations working directly with homeless people, plus two GPs with experience of work in this area in the London area of the North Thames region. The review showed that health professionals and staff in homelessness agencies tended to feel that homeless people have little interest in improving their health. Many professionals were also found to have a sense of hopelessness when faced with people in extreme circumstances and with intractable needs. Hinton also found that staff often felt that health promotion could not be a priority when there were more basic needs for food and shelter to be met. As a consequence further enquiries about broader health issues and initiating health promotion work may have been discouraged. The issue of low expectations among homeless people and those working with them therefore needs to be addressed. Hinton also urges methods to be found

> "to develop evaluation and measurement of outcome of health promotion for homeless people, including obtaining the views of homeless people" (Hinton, 1997 p37).

Wood et al (1997) surveyed the perceptions of GPs caring for homeless people in Bristol. 81% wanted more advice on services for homeless people, 57% wanted information on relevant local support groups, 33% wanted additional resources, 32% wanted a fast track referral procedure and 25% wanted specialist training.

There is also a widespread view that some of the problems of access could be ameliorated by a change in attitude from doctors (Linnane, 1997). The problem may not however be as clear cut. The attitudes may be partly explained by how GPs see their role. Dowrick et al (1996) explored the extent to which GPs views about the acceptable boundaries of their work are consistent with the 'biopsychosocial' approach to their work, which assumes that diagnoses are composed in physical, psychological and social terms. They sent a semi-structured questionnaire to all RCG Practitioners in the Mersey Region who were under 65 years and registered as current principals in general practice. Although only 207 (42%) forms were returned, these were reported to be representative of the age and sex profile of the full sample. It was not reported whether the returns were representative across districts. The respondents considered appropriate the presentation and management of a variety of physical problems and were ambivalent about psychological topics, although depression was rated as appropriate. Of particular relevance to this thesis was their finding that social problems, housing difficulties and welfare rights were all deemed inappropriate for presentation to and management by a general practitioner in general practice. It would therefore appear, the authors conclude, that GPs were not working to a biopsychosocial model of health care. The GPs were focused more towards acute physical illness, with some interest in psychological problems.

Conversely, Roderick et al (1991) found in their survey of all 221 district directors of public health in England and chief administrative medical officers in Wales, Scotland, and Northern Ireland (response rate 89%) that housing was perceived as a major health problem by 33% (65/196) of directors. Positive responses were most likely from inner city districts. 53% (104/196) of directors had included housing issues in their annual health report. In 16% (32/196) of districts specific services for the homeless had been set up. The researchers concluded that although concern about the impact of current housing policy on public health was shown by a substantial number of directors, the main activity was still allocation of medical priority despite a background of increasing housing need and homelessness. The underlying need is for greater advocacy to produce a healthy housing policy for all, and the annual public health report could be used to promote this objective (Roderick et al, 1991).

Increase in homelessness and related policy

The difficulty of providing health care for homeless people cannot be blamed on a individuals or professional groups. The problem also needs to be viewed within the current policy context. Although most homeless households become homeless due to relatives no longer or willing to accommodate, or because of relationship breakdowns (DoE, 1990-96), other housing alternatives are often not affordable. Homelessness has therefore increased as a direct result to changes to housing policy, but is also linked to housing benefit policy and community care policy. It was all part of the "rolling back" the welfare state ideology of the 1980s and 1990s. The decline in affordable public and private rented accommodation, increasing rents within the private sector, other government policies such as high interest rates and poll tax make it harder for individuals to compete in the housing market (Burrows and Walentowicz, 1992). The general under funding of health, social, housing and community care often means each organisation has fairly tight inclusion or targeting criteria. People who are homeless are often in low priority groups, and funding deficits can often make it unlikely that a local authority will accept responsibility for them. Furthermore, in the current financially-led NHS, homeless people may be viewed as expensive patients with multiple problems.

Implications for services

The problems outlined so far clearly have to be addressed in any provision of care for homeless people. Homelessness is a multi-dimensional service issue which touches many facets of the social welfare system (Kaufman, 1984). Effective services will undoubtedly need to reflect the health problems and difficulties in accessing existing services. It has already been shown that definitions of homelessness are important when addressing the problem in terms of service provision. A brief search on Medline reveals an abundance of descriptions of services for homeless people, many of which claim to be appropriate, accessible and effective *(for example:* Lee and Goodburn, 1993; Hayden and Bose, 1991; Gibb and Lucas, 1993; Davies, 1993; El-Kabir, 1996; Lanstaff, 1997; Hatton, 1997; Morrow et al, 1992*)*. Many of the early strategies involved appointing lone specialist workers or specialist teams (Winn, 1993). This approach asserts that health care needs of homeless people can only be met by special services which cater exclusively for them; these were often provided in hostels, day centres or special walk-in clinics (eg Luther Street Centre in Oxford described by Gibb and Lucas, 1993). Critics argue that such services may increase problems of access to mainstream services by absolving GPs from their duty to treat homeless people and discouraging homeless people from registering with GPs (Access to Health, 1992b). However, services to *homeless families* have generally not been specialised with the exception of a few health visitor posts and specific initiatives (eg Hayden, 1992). Shelter argue that it is necessary to consider alternative health care provisions (Linnane, 1997).

In recent years there has been a move towards more integrated services; this is now viewed as the most appropriate model for homeless families (Connelly and Crown, 1994). Many others note that a multi-disciplinary approach is needed when supplying primary care to homeless families (Haigh and Elliot, 1994; Sheffield Health, 1995; Standing Conference on Public Health, 1994; Morrow et al, 1992) and facilitating the use of mainstream services seems to be feasible for homeless families using liaison workers who facilitate GP registrations of other initiatives (Hutchinson and Gutteridge, 1995; Lewis, 1996; Lee and Goodburn, 1993; Haigh and Elliot, 1994; Sheffield Health, 1995; North et al, 1997). Very few services conform to the ideal of fully integrated provision. Bhugra (1996) notes that joint programmes and projects with support from the Departments of Environment, Health and Education are the way forward. This approach was adopted by King's Fund Grant Committee who ring fenced £150,000 to improve the extent and quality of inter-agency working across the health, housing and social care sectors. Projects worked across the health, housing and social care sectors and aimed to improve the joint planning and commissioning of services for homeless people (Elizabeth, 1996).

> "The most effective way of delivering health care to homeless people is to provide an integrated service, although special arrangements will often be required to ensure access" (Winn, 1993 p2).

Only recently however there have been a number of separate funds made available by the DoE and DoH to tackle the problem of homelessness. During 1990 and 1991 the government announced a range of measures which together became known as the rough sleepers initiative - costing aver £100m (Randall and Brown, 1993). Around the same time the DoH made £3m available to voluntary bodies to develop work with young people outside of London who were homeless. The DoH also launched the Homeless Mentally Ill Initiative in 1990. The £20m programme included up to 150 specialist short term hostel places and five new community based multi-disciplinary psychiatric teams. This has recently undergone an evaluation (Croft-White, 1998) and is considered for the systematic review in the following chapter.

Goss (1996) argues that there are numerous practical obstacles to effective inter-agency working such as conflicting priorities, different planning and bidding cycles, problems about lack of understanding and fears about 'inter-agency cost shunting' but notes that some of these can be overcome in projects for the homeless. Examples of this is are notification systems between the homeless person unit and health service providers in Camden (Firth, 1995) and Reading (Davies, 1993). Without the introduction of special initiatives, collaboration between different agencies is unlikely. Hinton (1997) found that much of the health promotion work for homeless people took place in isolation and despite much activity in this area there was little or no inter-agency co-ordination.

Most commentators and researchers may question if we should even be addressing homelessness as a health problem without also ensuring more affordable housing (Shlay, 1994). Increasing attention is being paid to the interface between housing and social policy (Robinson, 1995). Robinson argues that the health of the homeless people is a housing issue. In response it has been argued that housing policy is a health intervention appropriate to the needs of homeless people and should be considered as an integral part of social policy. He admits that the government has acknowledged that decent housing is a prerequisite of good health and made a promise to promote choice and quality in housing in the Health of the Nation White Paper (DoH, 1992). He goes on to argue that the energy directed at tackling the health and homelessness problem has focused on the search for health policies to secure improved medical care for homeless people, and neglected the links between the health profile of homeless people and housing policy. He postulates that policy-makers have turned the spotlight onto health care provision to divert attention away from the politically sensitive issue of housing availability, making the providers of primary care scapegoats.

> "The problem has been packaged as a failing of the NHS rather than the restructured housing system." (Robinson, 1995 p209)

Without a doubt, the problem of homelessness should be tackled with more housing but the 'macro' solutions take years. Snape (1996) estimates it would take 10 yrs building 100,000 homes each year to meet the current UK social housing demand. Shelter estimates that at least 150,000 affordable homes are required in England each year over the next ten years to meet housing need and eliminate homelessness altogether (Shelter, 1999c). In the mean time, health workers should lobby for more housing whilst finding effective ways of tackling the health problems. This is also the view of Health Action for Homeless People who note that,

> "the most effective long-term method to tackle this problem would be to guarantee homeless people access to a range of accommodation that meets their needs. However, until it is recognised that the social and health care cost of homelessness are too high, the health service must respond appropriately to the health care needs of homeless people while pressing for housing solutions" (Robinson, 1998 p2).

The development of primary health care projects for homeless people

In 1981 the problem of health care for homeless people was identified in the Acheson Report - the report of a study group on Primary Care in Inner London (DHSS, 1981). This recommended the use of the Secretary of State's powers under Section 56 of the 1977 NHS Act[2] to meet the needs of this particular group. The DoH (then DHSS) only began to exercise its Section 56 powers in 1986. Initially two pilot primary health care schemes providing health care to homeless people were established in Inner London. After the findings from the evaluation by the Policy Studies Institute (Williams and Allen, 1989), the DoH made available £3 million under Section 56 to fund 34 schemes across England. Regions were invited to bid on the Family Health Services Authorities' behalf for central funding for a maximum of 3 years. Although the models of care, target groups and skill mix were varied, most projects shared two key aims:

- to deliver good quality primary health care services to homeless people who would not otherwise have access to such services;
- to encourage homeless people to use mainstream services and encourage mainstream providers to take on homeless people (Williams, 1995).

The 34 schemes were jointly reviewed in a brief final report prepared for the DoH (Williams, 1995). The schemes ranged from a single worker through to multi-disciplinary teams. The range of services provided was dependent upon team size, skill mix and local priorities and included general medical services, nursing, health visiting, mental health services, chiropody, dentistry, health promotion and advocacy. Schemes varied in their operating arrangements according to local circumstances. These included: outreach clinics and visits to day centres and various forms of temporary accommodation and the streets; services provided at a dedicated base, typically a day centre or hostel; mobile units (eg dentistry equipment) taking services to outreach sites; and services which operated from within mainstream health services such as GP surgeries or clinics.

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[2] Section 56 provides that the Secretary of State may authorise a health authority to make, or make himself 'other arrangements' for the provision of general medical services where 'any considerable number of persons are not receiving satisfactory services'.

The Family Health Project (FHP), one of 34 DoH funded projects, is evaluated in this thesis. The background to the project, has been described in the Preface to the thesis.

The USA has a much larger literature on the subject of homelessness and health than the UK and there have been a wave of program evaluations in the USA focusing predominantly on programs for the homeless mentally ill. For example, the Health Care for the Homeless Program (HCH) provided free primary health care to homeless people in 19 cities. Clinics were located in shelters, soup kitchens, missions, drop in centres, and detoxification centres. In 1987, the McKinney Homeless Assistance Act replicated HCH clinics in more than 100 cities across the nation (Wright, 1990). HCH emphasised outreach and the integration of homeless patients into ongoing systems of community care. No such ambitious provision has been attempted across the UK - alas that the DoH funds were not used to generate validated standards of care. Despite the structural differences between the US and the UK (Bachrach, 1996), once homeless in either country, people tend to have similar needs and service interventions are often alike (Cohen, 1994). The pertinence, volume and standard of American literature are therefore relevant to the aims of the thesis.

Conclusion

To conclude this section on health problems and health care for homeless people: although the studies may not always be academically rigorous, they are consistent in their demonstration of a high prevalence of health problems among homeless people. The unsystematic nature of the research reflects the general nature of health service provision for this group, which has tended to remain a haphazard mixture of crisis intervention and praiseworthy efforts of committed individual professionals, charitable organisations and pilot or research projects.

This literature review indicates a sufficiency of needs-assessments in the literature. The climate for researchers is now, belatedly shifting; it is now felt that research and service provision should focus on adequate housing along with packages of care which include health, community care and social support services. Umbrella organisations working with the homeless (such as the Single Homeless Review Group in London) are now tending to place greater emphasis on the importance of evaluating services (London Borough Grants, 1998). Similarly the expert working group set up by the Health Education Authority (HEA) in 1996 to look at the effectiveness of health promotion activity among vulnerable and socially excluded populations identifies a need for evidence about the most effective ways to meet the needs of homeless people (HEA, 1999). They specify that more research is needed to evaluate interventions in terms of both process and outcomes, utilising a range of research methods and the developing indicators relevant to the goals of interventions with homeless people. There is a growing demand for sounder policy development to assist the homeless both here and the USA (Stretch and Kreuger, 1992). In a recent paper by those who contributed to the working group (HEA, 1999) it was also emphasised that "rigorous evaluation studies are needed urgently" (Power et al, 1999 p590). The next chapter will review the evidence of effectiveness of health and social care for homeless people.

2

THE EFFECTIVENESS OF HEALTH CARE AND SOCIAL CARE FOR HOMELESS PEOPLE: A SYSTEMATIC REVIEW

> "In the absence of rigorously conducted evaluative studies it is impossible to conclude which model of care most effectively meets the very obvious health care needs of homeless people." (Victor, 1996 p266)

There have been no systematic literature reviews or overviews of service evaluation for homeless people. Very few services for the homeless are based on evidence of efficacy or effectiveness[1]. This chapter presents a systematic review of studies to assess the evidence for the effectiveness of health and social care for homeless people. The review has been carried out using the principles of a systematic review and the synthesis provides a critical appraisal of the evidence.

INTRODUCTION

The Importance of Completing A Systematic Literature Review

> "If thorough and independent reviews are not carried out on a regular basis then an intellectual vacuum can be left, which is readily filled by clinicians with an axe to grind or by enthusiasts eager to put forward their views." (Sheldon et al, 1993 p142)

Most published review articles are unsystematic and are therefore subject to the biases of the authors, with the danger of reviewers selecting studies to confirm their prejudices. As Sheldon et al (1993) warn, this can have harmful consequences on clinical decision-

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[1] "The efficacy of an intervention is its impact in the best possible circumstances, whereas effectiveness is used to describe the impact of an intervention in everyday practice" (Gray, 1997 p113).

making.

Systematic reviews, which are as free from selection bias and random error as possible, are useful to service policy makers, managers, clinicians, researchers, funding bodies and individual consumers of services. Limited resources in the health service necessitate thorough and systematic reviews of the literature to provide clear evidence of the effectiveness or ineffectiveness of interventions and to indicate where future research should be directed (Chalmers et al, 1992). Policy makers need to know what works for whom, and why it works. Without relevant systematic reviews policy development and the provision of effective services is delayed.

This review has been carried out using the principles of a systematic review (NHS Centre for Reviews and Dissemination, 1996; Gray, 1997, Cochrane Effective Practice and Organisation of Care Group guidelines). **Systematic reviews are based on the principle that treatment effects are only worth considering if they come from a study that is methodologically sound.**

The synthesis will be a critical appraisal of the evidence rather than a full meta-analysis[2] because there are few individual studies which compare either different treatments on the same populations or similar treatments on different homeless populations, using the same outcome measurements. The same principles should apply: the analysis should be as rigorous as that required from a meta-analysis (Slavin, 1995; Marcus et al, 1987; Geddes et al, 1998). Judgement about the comparability and weight that should be attached to the various pieces of evidence will be made explicit. Thus, in weighting the conclusions, the larger and highest quality studies will be given more weight than the smaller and lower quality studies. Differences between the studies in terms of participants, interventions, outcomes and methods will provide an opportunity to note the consistency of treatment effects.

Of course no review procedure can totally eliminate the possibility that reviewers'

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[2] Meta-analysis is the statistical analysis of the results of a collection of studies for the purpose of synthesising their findings.

biases will affect the conclusions drawn (Slavin,1995,p17). However, by applying the principles of best-evidence synthesis ie making review procedures clear to the reader and providing the reader with enough information about the primary research, the presentation should be transparent enough for independent conclusions to be drawn.

Previous Reviews of the Literature

The reviews of the literature that have been published so far leave us without clear guidelines for evidence based practice. There have been no **systematic** literature reviews or overviews of service evaluation for homeless people. None are listed (complete or in progress) in Cochrane Database of Systematic Reviews (CRDSR) or the CRD Database of Abstracts of Reviews of Effectiveness (DARE). Reviews of the literature that exist (Marshall, 1996; Mercier et al, 1992; Milburn and Watts, 1986; Bybee et al 1995; Johnson and Cnaan, 1995; Shlay and Rossi, 1992) have been commentaries and have focussed almost entirely on homeless people with mental disorders; the efficacy of interventions is not exhaustively explored in these studies. None of these were systematic reviews, so they may be regarded as subject to bias. For example, Marshall conducted a patchy survey of the types of evaluative studies that have been conducted on services for homeless people with mental disorders. Johnson and Cnann (1995) reviewed 234 articles, published from 1978 to 1994, on social work practice with homeless persons. Different types of interventions for different types of homeless persons are reviewed, and 10 areas for practice innovation and advocacy are identified. This type of review tends to highlight the important literature rather than reviewing the validity of the findings in much depth. Milburn and Watts (1986) reviewed the research methods used to study the homeless and examined the samples chosen, study sites, study chronologies, and conceptual frameworks. They found that many of the epidemiological studies of the homeless appear to be sound in design, although they vary considerably in sophistication, content, and rigour. They note that much of the research on homelessness is largely atheoretical, a large part focussing on descriptions of a local, homeless population or of local services targeted at the homeless. They concluded that the conceptual framework underlying these studies is inadequate.

Clearly there is a place for a systematic review of the research which has focussed on the **effectiveness of services for homeless people.** Milburn and Watts (1986) noted

> "Because the research efforts to date have been primarily exploratory, a major gap is evident in the area of programme evaluation." (Milburn and Watts, 1986 p57)

They note however, that this is not because the services do not exist, but because,

> "no systematic evaluations of such programs have been undertaken. This leaves policy makers with little data on which to base rational program-development decisions". (Milburn and Watts, 1986 p57)

A REVIEW OF THE EFFECTIVENESS LITERATURE

Review Methodology

This review will focus on the question of efficacy of health care and social care for homeless people, taking randomised controlled trials to be the most effective research design. The methodological adequacy of studies depends primarily on the extent to which the study design minimised bias. In selecting studies for a best-evidence synthesis, one should take account of external and internal validity (Slavin, 1995).

Search Strategy

Originally, the review was to consider only those studies which purported to **evaluate health services** for homeless people. However, initial searches uncovered very few studies, so the criteria were widened to include **social intervention studies.** Indeed many of the evaluated services described predominantly as social interventions also had a health care component incorporated (Hunter et al, 1991). **Thus studies which addressed the effectiveness or efficacy of any type of generic health/ social care interventions (eg case management / health advocacy) for individual homeless clients were included in the review.** This search criterion fits with the current move to inter-agency (or multi-disciplinary) working and the ethos of primary care across health, housing and social care sectors for this client group. Best of all, the review had the potential to uncover service and methodological solutions that maybe transferable across services.

To avoid bias the review will examine the international literature because although the homeless problem may be different in some aspects in different countries and cultures (Cohen, 1994), the principles of measuring effectiveness should be similar.

Where there is little specific research and theory in a particular intervention area, such as health care for homeless people, it is beneficial to draw on existing research on related problems (Rog and Huebner, 1992). **Thus the more extensive literature on services for mentally ill homeless people will also be included in the review.**

The following databases were searched: Medline (1966 - 1999/02), Embase (1980-1999/01), Cinahl (1982-1998/9), Royal College of Nursing Journals Database (1985-1998), Sociofile (1974-6/98) and PsycLIT (1887-1998/12), HMIC: King's Fund Database (1979-1999), HMIC: HELMIS (Health Management Information Services Database) (1984-1998) and HMIC:DHdata (Dept Health Library and Information Services Database (1983-1999/2), AMED (Allied and Alternative Medicine Database) (1998/08). To achieve higher specificity, where possible a search strategy eg Medline search strategy (see box 2.1) and/ or MESH terms were used, otherwise free text searches using the keywords (and derivations) 'homelessness', 'evaluation', 'effectiveness' 'outcome', 'follow up', 'efficacy' 'randomised controlled trial', 'RCT' were performed. Other studies were identified through citations in journal articles and from hand searching relevant journals (Adams et al, 1994) and from the authors' contact with other workers in the field. Over the life of the study the author has also searched the British grey literature through links with the DoH and other homeless primary health care projects and the System of Information on Grey Literature in Europe (SIGLE) was also searched. Relevant internet sites (eg the US Health Care for the Homeless information resource centre, Joseph Rowntree, Access to Health Care for Homeless People and Shelter) were searched too.

The initial searches uncovered many purely descriptive studies, owing to over liberal use of the term "evaluation". Studies which did not address the "effectiveness/ efficacy" issue were excluded from further consideration in this review.

Box 2.1: EXAMPLE OF MEDLINE RANDOMISED CONTROLLED TRIAL (RCT) SEARCH STRATEGY

	Articles	
1	110665	randomized-controlled-trial in pt
2	44211	controlled-clinical-trial in pt
3	12313	"Randomized-Controlled-Trials"/ all subheadings
4	38209	"Random-Allocation"
5	54496	"Double-Blind-Method"
6	4155	"Single-Blind-Method"
7	192053	#1 or #2 or #3 or #4 or #5 or #6
8	243963	clinical-trial in pt
9	75396	explode "Clinical-Trials"/ all subheadings
10	49180	(clin* near trial*) in ti,ab
11	53261	((singl* or doubl* or trebl* or tripl*) near (blind* or mask*)) in ti,ab
12	18835	"Placebos"/ all subheadings
13	54945	placebo* in ti,ab
14	165707	random* in ti,ab
15	22339	"Research-Design"/ all subheadings
16	399968	#8 or #9 or #10 or #11 or #12 or #13 or #14 or #15
17	0	tg=comparative study
18	271516	explode "Evaluation-Studies"/ all subheadings
19	202384	"Follow-Up-Studies"
20	103581	"Prospective-Studies"
21	943958	(control* or prospectiv* or volunteer*) in ti,ab
22	1352504	#17 or #18 or #19 or #20 or #21
23	1540752	#7 or #16 or #22
24	2272120	(tg=animal) not (tg=human)
25	1201485	#23 not #24
26	2155	explode "Homeless-Persons"/ all subheadings
27	411	#25 and #26

411 articles uncovered in this search

Assessment of studies

Studies which purport to either evaluate the effectiveness of a service for the homeless or those that specifically deal with the question of measuring efficacy were considered for review.

In accordance with guidance from Cochrane Collaboration a data extraction tool was developed (see appendix I). This covered information on study design; target population; duration of study; intervention; number and size of control and experimental groups; intervention intensity; timing; duration of contact; level of compliance with intervention; follow-up period; types of analysis; outcomes; measurement units; statistical significance etc. Once the data had been extracted on to paper forms it was then entered onto a Papyrus and Microsoft Access database.

Comparison of studies: effect sizes

In order to compare the results from different studies it was important to calculate a measure which is comparable across studies. The studies involved are measuring different outcomes on differing scales; and we need to have a dimensionless measure of the effect of an intervention (Slavin, 1995), namely effect sizes.

Outcomes measured in the various studies are diverse. If possible, effect sizes (ES) were calculated from the statistical information reported in the texts.

Outcome measures are of two principal types:

i) *Continuous*:	the outcome for each subject is a measurement and the summary measure for a group of subjects is usually the mean measurement for that group (eg mean quality of life score).
ii) *Binary*:	there are only two possible outcomes for each subject and the summary measure for a group of subjects is the proportion with a 'successful' outcome (eg % housed).

Although calculations are different for the two types, in each case the ES relates the change in the summary measure to the variability of measurements with a group, thus allowing one to combine the two types of outcome on a single scale.

The effect size calculations are (Edwards et al, 1999):

$$\frac{\text{mean difference}}{\text{standard deviation}} \qquad \text{or} \qquad \frac{\text{difference in proportions}}{\text{standard deviation}}$$

For two group comparisons, this is the mean of the intervention group minus the mean of the control group, divided by the standard deviation of the control group (Smith and Glass, 1977). In a 'before and after study', it is the mean change in outcome divided by the standard deviation at baseline. Regarding the direction of effect, beneficial outcomes were attributed as positive; these included increased quality of life, improved health status, reduced homelessness, and reduced hospitalisation.

The 'standard deviation' for binary outcomes is calculated using the following formula (Edwards et al, 1999):

$$\frac{\text{difference in proportions}}{\sqrt{}(\text{proportion 'yes'})*(\text{proportion 'no'})}$$

Effect sizes could not be calculated for those studies with incomplete data. In these cases, the statistical significance and direction of effect are reported.

Categorising the Studies in Terms of Validity

There will be two stages to the review which will take account of the variations in methodological quality of the studies uncovered. Stage one is a more inclusive review of the relevant literature; stage two focuses on the few high-quality studies, which should have the most important implications for future research and policy.

Stage one

All relevant studies uncovered in the literature search which do not fit the inclusion criteria for stage two are described here. An overview and discussion of these excluded studies will be provided. Usually reviewers may skim over this stage for publication due to shortage of space, but I have outlined in detail the "next best" designed studies which did not fulfil the inclusion criteria for stage two, to give the reader a more concrete idea of why a study was excluded and what the consequences of that exclusion are. The reader will be provided with richer information than would normally be included in a conventional published systematic review.

Stage two

Stage two will comprise a critical appraisal of the outcome studies which passed the formal inclusion criteria for methodological quality (see box 2.2)

Discussion of the stage two studies will include their findings, how they relate to the health advocacy study described in this thesis, and what lessons are transferable to different populations. Assessing the potential for bias in each study is essential in judging whether or not the results presented are valid. Any particular weaknesses of the studies and the biases to which they may be susceptible will also be reviewed.

Deciding on criteria for entry to stage two was difficult, as there is no gold standard for judging the methodological quality of a trial. The composite scores that were available (eg Jadad et al, 1996) were not generalisable or applicable to the homeless population as they do not take account of particular difficulties associated with researching this client group eg the profound problems of conducting double blind studies. Some investigators use long check-lists to evaluate methodological quality, while others may focus on only three or four items . Jadad et al's (1996) composite score of three items: (i) appropriate methods of randomisation; (ii) appropriate methods of blinding participants and raters; and (iii) description of those who withdrew from the study before its conclusion, were designed to assess the *likelihood of bias* and to be scored in under 10 minutes. Selection criteria used in many systematic reviews tend to be stringent and uncompromising in order to uncover the best evidence. For example, studies are usually required to use appropriate methods of randomisation (such as using a random numbers table or computer). Very few studies in the following review would meet this criterion, so different criteria were necessary to achieve the objective of uncovering the best available evidence.

Using a number of different sources (eg Jadad et al, 1996; Moher et al, 1998; Cochrane Effective Practice and Organisation of Care Group, 1999), the criteria for this review have been chosen to select out and "deconstruct" studies with adequate methodological quality for evaluating interventions for homeless people (Box 2.2). The two thresholds were drawn up on the basis of a preliminary analysis. The first threshold (1-9 Box 2.2) provides for a profile of methodological quality. The more stringent second level criteria (10-13) were more discriminatory as to the quality of studies, thus ensuring that only the methodologically sound studies were considered for the "stage two" review. Three of these criteria were those of Jadad et al (1996), two of which were difficult to achieve in these studies (appropriate methods of random assignment and blinding of assessors). Hence a further criterion directly related to the control of bias (comparability of treatment and control groups at entry) was added.

Box 2.2: SYSTEMATIC REVIEW SELECTION CRITERIA

Stage I:

i. Studies which address the effectiveness or efficacy of any type of generic health/ social care interventions eg case management / health advocacy for individual homeless clients.

Stage II:

Studies should fulfil each of the following nine criteria:

1. was the study described as a RCT?
2. was the study complete?
3. was there an adequate follow up (>=50%[3])?
4. was there a clear description of the interventions?
5. were the methods of statistical analysis described?
6. were validated or objective outcomes used?
7. were the objectives of the study defined?
8. was there a clear description of the inclusion and exclusion criteria?
9. was the sample size appropriate (n>=30) or justified by power calculations?

And studies should fulfil 2 out of the following 4 criteria

10. were appropriate methods of random assignment described?
11. was there a description of those who withdrew from the trial before its conclusion? (Were respondents comparable to non-respondents?)
12. were the assessors of outcomes (other than self rated) blinded?
13. were the control and treatment groups comparable at entry?

Study Design

The first inclusion criterion used to classify the studies is related to design. The NHS Centre for Reviews and Dissemination have classified studies according to design (see Box 2.3). Other categorisations, such as Marshall's (1996) classification of evaluative studies of services for homeless people with mental disorders and Mant's (1993) classification of homeless research studies were less useful in ranking study design.

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[3] A 50% attrition rate was used in Marshall et al's (1997) systematic review of case management for severe mental disorders.

Marshall's (1996) categorisations of studies has major drawbacks. He categorises 'evaluative' studies of services for homeless people with mental disorders according to design. The broad groupings he used were: retrospective evaluations; evaluations based on the impressions of a trained observer; surveys; follow up evaluations; before and after evaluations; single case and 'action research' evaluations; quasi- experimental evaluations and randomised controlled trials. Mant (1993) classified homeless research studies into five areas: descriptive, case-control, longitudinal, intervention and extrapolative. Both researchers attempt at ranking the study design according to reliability, but the rankings are less useful than the clear methodologically based NHS R&D classification.

Box 2.3: The NHS Centre for Reviews and Dissemination (1996) classification of study design

Experimental Studies
In experimental studies the investigator tries to control the manner in which participants are allocated to the different groups. These can be divided into 3 groups:

I. Well-designed randomised controlled trials ie a trial in which the participants were definitely assigned **prospectively** to one or more alternative forms of health or social care using a process of random allocation (eg random numbers generation)
Other types of trial:
II. 1a. Well-designed controlled trial with pseudo-randomisation (eg alternation, date of birth, patient identifier)
II. 1b. Well-designed controlled trial with no randomisation

Observational Studies
Cohort studies:
II. 2a. Well-designed cohort (prospective study) with concurrent controls
II. 2b. Well-designed cohort (prospective study) with historical controls
II. 2c. Well-designed cohort (retrospective study) with concurrent controls
II. 3. Well-designed case control (retrospective) study

III. 4. Before- and-after studies

Randomised controlled trials are now generally held to be the most suitable method for determining whether a service is effective (World Health Organisation, 1991). They are also the most suitable method for determining whether one service is superior to another, given suitable outcome measures. The ideal design of a study investigating the efficacy of a new intervention in health care is a randomised double blind controlled study (RCT), in which patients are allocated randomly to the 'control' or 'intervention' group. Prospectively designed RCT's go as far as possible to eliminate bias by prospectively allocating clients /subjects to different treatment groups in a random manner. When neither patient nor evaluator is aware of the treatment group of any individual patient one can ensure that neither patient selection nor assessment of outcome are biased by the expectations of the patient or evaluators. Any significant differences in the results for 'control' versus 'intervention' patients are then very likely to be due to the intervention rather than to 'confounding' variables .

Before and after studies, which are ranked last in the hierarchy (box 2.3), follow the same subjects before and after in an intervention with no additional comparator or 'control' group. The comparison is made within the single group of subjects, making it difficult to conclude that the differences found are attributable to the intervention. These are featured heavily in the studies retrieved in the literature search. David Mant writes:

> "The most unsatisfactory intervention study is the simple 'before-after' comparison. This is almost useless: invariably it is impossible to dissociate benefit due to the intervention from benefit due to the passage of time, however self-evident the benefit of the intervention may seem." (Mant, 1993 p12)

Dissatisfaction with these studies in clinical medicine is partly related to the statistical phenomenon known as regression to the mean (Campbell and Stanley, 1963). If respondents with extreme values are singled out from a distribution, they are likely, for purely statistical reasons, to show values closer to the usual level if measurement is repeated. In the absence of a control group, results at follow up might reflect this process but be wrongly attributed to the effect of an intervention. Also, it is a widely observed phenomenon that responders report improvement over time when involved in longitudinal studies (Hawthorn effect; Bracht and Glass, 1968 cited in Christensen, 1997) even in the "placebo" arms of trials. Thus, observational methods, whilst of value in identifying problems with existing services, are not helpful when used as the sole means of assessing the effectiveness of a new service.

It is often impossible because of poor study design to attribute the observed outcome directly to the process of care. It is however, important to consider aspects of studies, which are not RCT's, not least because they are often in areas where empirical work has not been previously conducted, thus they may act as a guide to future research.

Problems with the review

Scope: As with all systematic reviews the question of what to include was problematic. If entry criteria are narrow, the generalisability of the results may be reduced. However as the entry criteria for interventions (eg social, housing etc) and individuals (eg mentally ill, young, etc) are broadened the review becomes hard to synthesise. Even where studies have been set up to look at effectiveness by one external agency, this synthesis has been difficult due to different treatments and different "homeless" populations such as those with drug or alcohol problems (Orwin et al, 1994), families (Rog, 1995) and mentally ill people (Bybee et al,1994). The diversity of the studies make it difficult to look systematically at what services are actually delivered and the components or working practices which are associated with effectiveness.

Ideally the review would concentrate on those studies which researched the effects of interventions on the population under study in this thesis (homeless families in temporary accommodation) to assess which interventions were more likely to improve a client's situation and by how much, relative to controls, using effect sizes. **However, very few controlled studies were found amongst the considerable literature purporting to evaluate services for homeless families: the vast majority of the studies were observational, 'before-and-after' designs** (eg Rog et al, 1995; Shinn et al, 1990; Stretch and Kreuger, 1992; Lindsey, 1996).

Language: Although language restrictions may introduce bias, resources were not available for translation. No relevant foreign language studies were tracked using the databases outlined (if there had been any EMBASE would have been most likely to pick these up).

FINDINGS

Studies excluded from the first stage

The *titles or abstracts* of many studies uncovered in the literature search indicated that they were evaluative study of an intervention within the scope of this review but on further reading they were often found unsuitable. Sometimes this was due to incomplete or inadequate reporting of results (Bonham et al, 1990; Draine and Solomon, 1994; Susser et al, 1996; Willenbring et al, 1990; Weinreb et al, 1995; Caton et al, 1990; Felton et al, 1995), descriptions or qualitative studies of services for homeless people without formal measurement of outcomes (Crabbe 1997; Croft-White, 1998; Lindsey 1992 & 1996; Hatton, 1997; Mercier and Racine, 1995; Shinn et al, 1990; Williams and Allen, 1989; Powell, 1988; May and Evans, 1994; Centre for Housing Policy, 1998; DoE, 1993; Bhugra et al, 1997; Bickel and Forsyth-Stephens, 1983; Flagg et al, 1989; Cunnane et al, 1995; Heubner and Tryssenaar, 1996), unsuccessful studies (Toomey et al, 1989) or studies which did not entirely represent homeless people (Nyamathi et al, 1994).

These studies were not included in the review but may provide some useful qualitative research. For example three of these studies (Hatton, 1997; Lindsey, 1996; Nyamathi et al, 1995) focused on the importance of social supports for homeless people (women and families). Also it is worth mentioning two of the British 'evaluations' (Williams and Allen, 1989 & 1991; Croft-White, 1997) which are particularly relevant to the context this thesis but which fail to provide findings for evidence-based decision making. In 1987 the Policy Studies Institute began a year long evaluation of two pilot multi-disciplinary primary health care teams for homeless people in inner London, established by the Department of Health. Williams and Allen (1989) provide a useful and colourful description of this 'evaluation' but note that they "were confronted not only by the well documented difficulties associated with assessing outcomes in general practice, but also the problem that the population we were surveying was not stable and was virtually impossible to follow-up". Difficulties were also compounded by conflicting objectives of clinicians and researchers. Croft-White (1998) was commissioned to evaluate the Homeless Mentally Ill Initiative (HMII) which was designed to facilitate the development of a wide range of specialist services to meet the needs of homeless mentally ill. The evaluation relied on qualitative data collected over a 3 month period but did not report any systematic outcome data collection. The report recommended that providers should identify and agree a range of outcomes that are appropriate to their activity and client group. Both these 'evaluations' would have benefited from a formal research design and pre-set outcome indicators. Despite the £6m cash input per year (current) from the DoH and Housing Corporation this was still only being discussed in the eighth year of operation!

Lessons can also be learned from an unsuccessful study (Toomey et al, 1989) which experienced many research difficulties, weakening the original intended design. One of these was the difficulty of persuading staff to collect evaluation data. This highlights the importance of specifying the necessary components of an evaluation, which may require sophisticated instrumentation, design, sampling, and data collection methods.

Given that proponents of the post-positivist paradigm within health service research would no doubt be critical of such rigorous scientific methods, it merits some discussion. There is also much discussion in the health service literature about attempting to maximise the advantages and minimise the disadvantages of different research methods by mixing methods and using triangulation to validate data (for example, Ong, 1993; Sidani and Braden, 1998). Descriptive studies can contribute to research in this area, for example, by confirming how well the actual programme corresponds to the intended programme; and by providing a complete description of the programme to ensure replication in the event it is effective (Mercier and Racine, 1995). However, descriptive studies do not answer questions of efficacy.

Content of the studies included in the review (stages 1 and 2)

In all, thirty three studies were reviewed. Data were extracted onto the data collection tool (see appendix 1) and subsequently entered onto a database on Access and later SPSS for analysis. Only nine of these studies fulfilled the selection criteria for the stage 2; the remaining 24 studies are reviewed in stage 1.

An overwhelming majority of the 33 studies were conducted in the United States (88%), two were conducted in Canada, one in the United Kingdom and one in Israel. Although most studies focus on particular subgroups of homeless people, some studies may include a number of different homeless groups. Where this is the case, the predominant group has been reported (table 2.1). The populations most frequently involved were mentally ill homeless people (46%) or individuals with substance abuse/ alcohol problems (30%). Only 4 (12%) studies focused on homeless families. 83% of the interventions evaluated were wholly or partly located in the community (table 2.2).

Table 2.1: Types of homeless people involved in the studies under review (n=33)

	n	%
Mentally ill	11	33.3
Mentally ill males	2	6.1
Mentally ill veterans	2	6.1
Male veterans	1	3.0
Individuals with substance/ alcohol problems	6	18.2
Females with substance/ alcohol problems	2	6.1
Males veterans with substance/ alcohol problems	2	6.1
Families	4	12.1
Mixed	2	6.1
Young people	1	3.0

Table 2.2 : Intervention location in the studies included in the review (n=33)

	n	%
Community based care	14	42.4
Residential-community	12	36.4
Residential	5	15.2
A&E	1	3.0
Hospital-community	1	3.0

Types of intervention

Most of the studies evaluated social interventions (table 2.3). Very few studies were based completely within health services and there were no studies which focussed on primary care interventions. 36% of studies have evaluated an intervention implemented by health workers, however none evaluated interventions based within primary health care. Only two studies looked at the effectiveness of non-professional staff (Susser et al, 1997; Redelmeier, 1997) and two further studies looked at the effectiveness of community staff relative to professionally trained mental health workers (Morse et al, 1997; Lehman et al, 1997) (see chapter 3 for more details on process measures).

Table 2.3: Providers of the intervention in the studies included in the review(n=33)

	n	%
Social services workers	8	24.2
Health and social services workers	8	24.2
Case managers (discipline not specified)	8	24.2
Health service workers	4	12.1
Other providers eg support worker or volunteer	2	6.1
Not clear	3	9.1

Table 2.4: Outcomes measured in the included studies (n=33)

	n	(%)
Homeless	26	(78.8)
Mental health	22	(66.7)
Employment or education	17	(51.5)
Social health	16	(48.5)
Income	13	(39.4)
Use of alcohol	13	(39.4)
Use of drugs	13	(39.4)
Physical health	10	(30.3)
Health care utilisation	7	(21.2)
Quality of life/ well being	6	(18.2)
Hospitalisation or admissions	6	(18.2)
Criminal justice legal problems	5	(15.2)
Quality of living arrangement or residential status	5	(15.2)
Social care utilisation	4	(12.1)
Life satisfaction	3	(9.1)
Engagement	3	(9.1)
Client satisfaction	2	(6.1)
Health status	2	(6.1)

Outcomes measured

Outcomes were classified into 18 categories. The most commonly measured outcomes were further periods of homelessness (79%), mental health and psychiatric problems (67%)(which included stressful events, depression, self esteem, hope, alienation and psychiatric status), employment status (52%) and measures of social health (49%)

(which included social contact, living skills, social relations, interpersonal support and client functioning). Given that all of the studies were aiming to evaluate the effectiveness of specific interventions and given that most of the studies were carried out in the USA where there is greater emphasis on documentation (Murray and Baier, 1995), it was surprising that only a third of all the studies measured the amount of services received by study participants.

Follow up information

Nine of the 33 studies accepted for this review had insufficient information from which to calculate effect sizes (Braucht et al, 1995; Mercier et al, 1993; Rog et al, 1995; Hurlburt et al, 1996; Murray and Baier, 1995; Stretch and Kreuger, 1992; Tollet and Thomas, 1995; Shlay and Holupka, 1992; Redelmeier et al, 1995).

Table 2.5: Design of the studies included in the review (n=33)

	n	%
Randomised controlled trial	12	36.4
Controlled clinical trial	4	12.1
Quasi-experimental trial	4	12.1
Before and after cohort study	11	33.3
Case study/ qualitative evaluation	1	3.0
Process evaluation (service outcomes)	1	3.0

The majority of the follow up studies included in this review adopted an experimental or quasi-experimental design (60%) but only 36% were randomised controlled trials. 39% of studies had no control group. Within the experimental design studies, the most researched homeless client group is the mentally ill; families were not represented at all in this design type until recently (Toro et al, 1997). A total of 5734 subjects were sampled for these 33 studies, the number of subjects in each study ranging from 25 to 781. Most studies (24; 73%) were conducted in one site. The final follow up period varied from 1 month to 6 years.

Stage One

Twenty four studies are excluded from the final stage of this review on methodological grounds. These are described in table 2.6.These studies have major drawbacks as it is often impossible to attribute the observed outcome directly to the process of care. As discussed earlier, it is however, important to consider the results of these studies, not least because they are often in areas where empirical work has not been previously conducted. The descriptions of interventions may be useful when used to complement the design of a suitable empirical approach, such as a RCT. The diversity of the studies, however, make it difficult to define what services are actually delivered and the components or working practices which are associated with effectiveness.

Abbreviations for table 2.6 & table 2.8

Funding bodies	NIAAA	= National Institute on Alcohol Abuse and Alcoholism
	NIDA	= National Institute on Drug Abuse
	NIMH	= National Institute of Mental Health
	NIH	= National Institute of Health
	SAMSHA	= Substance Abuse and Mental Health Services Administration
	RWJF	= Robert Wood Johnson Foundation
	HUD	= US Department of Housing and Urban Development
	DVA	= Department of Veteran Affairs
	MRC	= Medical Research Council
Interventions:	CM	= Case management /case manager
	ICM	= Intensive case management
Study design:	RCT	= randomised controlled trial;
	CCT	= controlled clinical trial;
	Quasi-expt.	= quasi-experimental
Results:	ns	= not significant
	e.s	= effect size. These are calculated from the data reported by each study. Often data is not reported sufficiently to calculate effect sizes.

Table 2.6: Table of stage one studies: principal results and design characteristics

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Argeriou M (1992);Boston, USA; NIAAA / NIDA	Health; homeless substance abusers; 91% male; 49% White;100% substance abuse problem	ICM residential treatment centres and supportive housing. Coordination of (post-detoxification) residential substance abuse rehabilitation services with other social services. Duration of contact: > 1 year. Prof grp: (CM) not specified.	No case management	Quasi-expt.; 2 sites; N=311; 9 months; 38% attrition.	Use of alcohol(e.s.=.24); use of alcohol (score)(e.s.=.00) ;use of drugs(e.s.=.03) ; use of drugs (score) (e.s.=.11); housing permanence(e.s.=.50); housing independence(e.s.=.43);employment(e.s.=.08); employment (score)(e.s.=-.08); economic security(e.s.=.08); medical problems(e.s.=.11); medical problems (score)(e.s.=.14) psychiatric problems(e.s.=-.16) psychiatric problems(score) (e.s.=-.24)	Contamination effects: some CM services were provided to the control group. Although no firm conclusions can be drawn, the results indicate that the intervention has limited effectiveness with only 2 of the 13 outcomes measures favouring the treatment group on housing outcomes. The effect sizes of these variables suggested a slightly stronger than a 'small' effect.
Bybee (1994); Michigan, USA; NIMH Grant (in part)	Mental Health Social Services; mentally ill adults; mean age 38 yrs; 57% male;59% white; 29% substance abuse problem;	Short term ICM: comprehensive assessment of functioning, housing preferences and needs; assistance in obtaining temporary or permanent independent housing; help in establishing income supports; training or rehabilitation in ADL and interpersonal /social skills; mental health clinical services; outreach. Duration: mean 2.5 months. Prof grp: mental health wrks	Before /after	Cohort; 2 sites; N=139; 12 months; attrition 32%	Homelessness (e.s.=.45); client functioning (ns); residential setting; cumulative residential experiences; service use; engagement status (no e.s. and no significance reported).	Without a control group and randomisation, one cannot be certain that the high rates of permanent housing at follow up are higher than without intervention

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Caton et al, 1990; New York City, USA; NIH Biomedical Research Support Grant	Mental Health; mentally ill males; mean age 38yrs; 78% black; 69% schizophrenia; 63% co-occurring substance abuse problems	Mental health day treatment at a crisis shelter. Psycho-social counselling, recreational therapy, medication maintenance and housing placement. Duration and prof grp not specified.	Before /after	Cohort; 3 sites; N=32; 6 months after community rehousing; 18% attrition	Homelessness (e.s.=2.54); criminal justice contacts (.71); psychiatric admissions (-.31); income (e.s.=5.51); employment (e.s.=.92)	Like many other studies this one uses a biased sample i.e. those who completed the treatment therefore follow up was easier - 39 /200 men who attended the program. High overall attrition rate at follow up and small sample over long intake period.
Cauce et al (1994); Seattle, USA NIMH/ SAMSHA Grant	Mental health services; young people (13-21 yrs) with no stable residence; Mean age16yr; 75% male; 59% white	ICM offered within a multi service centre. Not time limited and follows the following components: assessment, treatment teams (team approach ensures continuity of services), treatment planning, linkage with other services, monitoring and tracking, advocacy, crisis service, flexible funds and therapeutic relationship. Caseload (max12). Individual client contact 1 hr/wk. Group contact 1.5 hr/wk. Prof grp: social worker and psychologist.	Caseload (min18 /max 30). Individual client contact: as needed. Group contact: sporadic.	Quasi expt.; N=115; 3 months; attrition not reported	Depression (e.s.=.09) problem behaviour (e.s.=-.18) substance abuse (e.s.=-.15) self esteem (e.s.=-.11) quality of life (e.s.=.31) competencies and behavioural problems (e.s.=.19)	Both interventions housed in same site; the control condition (regular CM) was also comprehensive and innovative. Study is incomplete: only limited follow up published.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions

Drake et al (1997); Washington DC, USA; NIAAA and NIMH	Mental Health; mentally ill & substance/ alcohol prob; mean age35yr; 66% female; 89% African American; 38% schizophrenia	Integrated MH treatment, substance abuse counselling, housing services through a private, non-profit agency. Outpatient and inpatient services. Prof grp: CMs, substance abuse counsellors and housing support staff	Separate services through multiple agencies in the existing housing, substance abuse, self help and community mental health systems. Little integration between services.	Quasi-expt.;
				2 sites;
				N=187;
				18 mths;
				14% attrition
					Homelessness (e.s.=.78);
					housing status (e.s.=.0.1);
					alcohol use(e.s.=.21);
					drug use (e.s.=.02);
					quality of life (no e.s & ns)
						The standard treatment group received similar amounts of total services.
						Non-randomised sample, over sampled females and non-equivalent groups.

Hague (1992); Kentucky, USA; NIAAA / NIDA	Social services and housing; homeless substance abusers; mean age 29; 100% male; 71% white ; 100% substance abuse problem	Outreach/screening, shelter /sobering-up station, proactive ICM, health and social services and vocational training. Duration 1 year. Implemented by CMs.	Reactive CM	CCT;
				N=116;
				24 mths;
				attrition 30%
					Use of alcohol(e.s.=.16);
					use of alcohol (score)(e.s.=.25);
					use of drugs(e.s.=-.19);
					use of drugs (score) (e.s.=-.35);
					employment(e.s.=-.33);
					employment (score)(e.s.=-.42);
					economic security(e.s.=-.32);
					medical problems(e.s.=-.38);
					medical problems (score)(e.s.=-.38);
					psychiatric problems(e.s.=.06);
					psychiatric problems(score) (e.s.=.00);
					housing permanence(e.s.=.02);
					housing independence(e.s.=-.37)
						Lack of randomisation, groups were systematically different, comparison group very small and contamination effects occurred. No evidence of any effects of proactive CM but it is not clear whether this is due to methodological weaknesses or due to a weak CM model.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Helvie and Alexy (1992); Virginia, USA; Federal government	Department of Housing and Community Development; families; no description of population characteristics	CM after a shelter stay. The case manager worked intensively with families, helping to locate resources and serving as a resource link, assisting with application processes, providing transport when necessary, and acting as advocate and support person. Initially contact once a week, then every other week until linked with other agencies.	Before/ after	Cohort; N=178; 1 year; attrition not reported	Length of stay at shelter (e.s.=.71) permanent housing (e.s.=.52)	The simple comparison of two cohorts, one before CM and one after CM introduced, indicates an improvement in the two outcomes measured, but methodological weaknesses of the study and inadequate reporting do not support the hypothesis.
Leda and Rosenheck (1992); Florida, Ohio, California, US; Domiciliary Care for Homeless Veterans Programme	Department of Veterans Affairs and Mental Health; homeless veterans with psychiatric or substance use disorders; mean age 40 yr; 97% male; 57% white; 81% drug/ alcohol abuse	A multi-dimensional time-limited residential treatment programme that addresses personal and practical aspects of community adjustment: substance abuse treatment, group therapy and individualised counselling. All sites offered pre-vocational and work rehabilitation programmes. Few objective operational data were available on the 3 sites. Site visits indicated that each had different approaches: cognitive-behavioural, vocational rehabilitational and CM.	Before /after	Cohort; 3 sites; N=255; 3 months after discharge; attrition 39%	Duration of homelessness (e.s.=1.33); psychiatric problems (e.s.=0.69); Alcohol problems (e.s.=0.16); Drug problems (e.s.=0.22); Social contact (e.s.=0.73); Monthly income (e.s.=0.75); Employment status (e.s.=1.16)	Effect sizes were highest (denoting improvement) in the outcomes: homelessness; employment status; income; social contact; and psychiatric problems. Without a control group the improvements noted cannot be conclusively attributed to treatment.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Lipton et al (1988);New York, USA;	Mental Health; mean age 37 yr 65% male; 82% schizo disorders.	An integrated and comprehensive service: a furnished room, individualised CM, coordination of public assistance, medication monitoring, meals, activity therapy and referrals to Psycho-social and rehab programmes, on-site psychiatric treatment and facilitation of hospital admissions. Prof grp: 5-7 persons psychology, social work and counselling backgrounds	Routine discharge planning	RCT; N=39; 12 months; attrition 25%	Psychiatric status (no e.s; ns); Residential status (e.s.=1.10); Episodes of homelessness (e.s.=.57); Extent of hospitalisation (e.s.=1.31); Quality of living arrangements (e.s.=1.48)	Despite its experimental design, due to the many limitations this study remains exploratory though it provides preliminary support for the development of a continuum of residential and treatment services for homeless mentally ill clients.
Mercier,C (1993); Montreal, Canada; Quebec Council of Social Research Grant	Mental Health; homeless women with alcohol and drug abuse problems; 92% French speaking Canadian; 80% alcohol is substance of abuse; 40% multiple substance abuse; 72% physical health problems	A detoxification and rehabilitation centre comprising of an in-house non-medical detoxification program and a CM programme. CMs operate from a different site but visit the centre regularly. Each worker is specifically responsible for a certain number of women. CM: client ratio 1:10. Duration of contact 88% > 1 year (range 6-44 mths). Prof grp not specified.		Case study research strategy; N=25; every 2 months; attrition not reported.	Housing; physical and mental health; legal problems; employment and education; interpersonal relationships; children (no e.s. or significance reported); general development in clients situation (44% deteriorated)	Variable follow up, no baseline measures and no objective outcomes used. The findings indicate overall deterioration in long-term participants than in more recent arrivals. Although useful in an exploratory sense, this qualitative data lacks uniformity, generalisability and conclusive findings.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Murray and Baier (1995);St. Louis, USA; Nursing Research Fund of School of Nursing	Mental Health; mentally ill; 75% male; 59% Caucasion; 51% psychiatric disorder; 40% dual diagnosis	Housing and case management services: a transitional residential programme that encompasses a homelike atmosphere, treatment services and a range of opportunities for clients. After the client is assisted with medical & stabilisation and behavioural management, he/she is assisted to obtain housing and entitlement funds. Duration of contact: mean 95 days. Prof grp: nurses and social workers	None	Cohort; N=228; 1 year post discharge; 22% attrition	Service outcomes: Discharged according to treatment plan (48%); follow up contact maintained at 1 year (79%); maintenance of housing placement for 1 year (92%); obtaining pension (+ve $p<.001$)	Despite the indication of positive outcomes, no firm conclusions can be drawn.
Prabucki et al 1995; Ohio, USA; DVA	Domicilary Care for Homeless Veterans; mentally ill homeless veterans; no characteristics reported	Residential rehabilitation program providing a continuum of care for mentally ill homeless clients. A therapeutic structure is adopted by fostering compliance with rules and guidelines for joint living. This is achieved by a self-governance system and individual CM. All participants are given work and rewarded; success is reinforced by enhanced status in the program and increased financial compensation. Social skills are enhanced through structured	Before /after	Cohort; N=58; 6 months after discharge; attrition 56%.	Income (e.s.=4.69); Housing status (e.s.=2.85); Vocational status (e.s.=1.41); Psychological and emotional distress (7 symptoms)(no e.s.; all +ve $p<.05$); Coping (6 dimensions)(no e.s.; 2 /6 +ve $p<.05$); Social adjustment (no e.s.; 2/3 +ve $p<.005$)	Findings suggest that a comprehensive residential rehab programme can help homeless veterans improve their lives in several areas of community adjustment and maintain stability in these areas after discharge from treatment. However without a control group and randomisation, one cannot attribute the positive outcomes entirely to the intervention.

training groups peer group support activities and structured leisure-time activities. Classes are also attended in job seeking skills, and vocational counselling is offered. Participants also attend classes and receive individual coaching from case managers on how to manage money and seek housing. Duration of contact: 6-9 months. Prof grp: (CM) not specified.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions

Rife et al (1991); Columbia, USA; NIMH Grant and Indiana Dept Mental Health	Mental Health Social Services; mentally ill; mean age 28; 75% male; 51% black; 98% unemployed	CM (assertive): intensive client outreach, identification, screening, assessment, service planning and linkage, ongoing client monitoring, advocacy.
		Duration of contact not reported.
		Prof grp: social wks and nurses.
			Before / after	Cohort;
				N=46;
				6 months;
				69% attrition
					QOL: Global well being (e.s.=1.09);
					living situation (e.s.=1.15) ;
					family relations (e.s.=-.14);
					social relations (e.s.=.01);
					leisure (e.s.=.45);
					finances (e.s.=1.02);
					safety (e.s.=1.71);
					health (e.s.=.77);
					unemployment (e.s.=.23);
					religion (e.s.=-.20)
						Although statistically significant improvements were made in 6 of the 10 QOL domains (including health), high attrition, the biased sample (those who participated for six months were followed up) and the before and after design were the main limitations. Problems of staff turnover were noted. Inconclusive results in this study

Redelmeier et al, 1995; Ontario, Canada; Ministry of Health; Institute of Clinical Evaluative Sciences; Natural Sciences and Engineering RC	Secondary health care: emergency department (ED); non psychotic homeless adults; mean age 37 yrs; 83% male; 31% reduced lev. of consciousness main complaint; 34% neurological abnormalities reported on physl exam. Prof grp: trained volunteers.	Compassionate care: trained volunteers explained their role, established rapport, and spent time listening attentively to homeless patients. Sometimes this involved patients receiving food from the volunteer. Duration of contact: throughout the patient's stay in the ED. Prof grp: volunteer students.	Conventional care, having no contact with volunteers but otherwise treated by the same clinical staff.	RCT; N=133; 6.5 mths (mean); no attrition	Repeat visits to the emergency department (average number of visits per month lower for I group 0.43 vs 0.65, p=0.018)(no e.s.)	Utilisation of other agencies of care were not measured - only 3 hospitals.

Author, year, country and funding	**Service & Population characteristics**	**Intervention (duration /professional group)**	**Control input**	**Study design; no. sites; sample size (follow up); final follow up; attrition**	**Outcomes with effect size (e.s)**	**Conclusions**
Rog,DG (1995; 1997); USA; RWJF and HUD	Housing, social services and health services; families;	CM (Contacts: 41% arranging services ; 37% visits to families; 28% working with families in development of skills). Cluster analysis revealed 4 service models: minimal service intervention (low service provision, focus on community empowerment); focused service interventions (CM averaged one hour every three weeks or less); comprehensive service access - modest support (CM averaged one hour every 2 weeks); comprehensive service access - relatively intense support (CM averaged one or more hours a week). Duration of contact: mean 13 months (range 9-18 months). Prof grp: social wrks and nurses.	Before /after	N=781; 9 sites;	*(Outcome results are not reported comprehensively.)* Residential stability; homelessness / housing history; education; income and entitlement; health; Nutrition; Mental Health; Domestic Violence; Alcohol / other drug; Social support; Family resources; Childhood/ Family background; Legal Problems/ assistance	Difficult to draw any strong conclusions from the initial preliminary analysis.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Rosenheck et al (1995); USA; Department of Veterans	Department of Veterans Affairs and Mental Health; homeless veterans with psychiatric or substance use disorders; 98% male; 59% white; 60% substance use disorder.	Four key services: outreach to inform; advocacy and linkage to facilitate the receipt of psychiatric, substance abuse and social services; residential treatment for up to 6 months and continuing CM. Duration of contact: mean 8.76 months; mean 20 contacts with clinicians. Prof grp: social workers.	Before /after	Cohort; 9 sites; N=406; 12 months; attrition 63%	Homelessness (e.s.=2.10); Residential status (e.s=1.05); psychological distress ; psychiatric problems; alcohol use; drug use medical health problem; employment; social contact (no e.s. all +ve $p<.001$)	Simple comparisons of baseline and follow up data (varied lengths mean follow up 8.3 months due to high attrition rate) suggest improvement on 9 out of 10 outcomes measures.
Shlay and Holupka (1992); Baltimore, USA; Office of Employment, Housing Authoity and Ford Foundation	Housing and employment; families; mean age 31 yrs; virtually all families were headed by females; virtually all black; 2.06 mean children in families	The Family Development Centre (FDC) is an umbrella organisation, offering a variety of on site services including education, job training, health care and child care and support services for teenagers. CM: Each family is assigned a CM who assesses the client's needs and tries to meet those needs by assigning the resident to an appropriate FDC program. Duration of contact 2 years.	A sample of families living in a similar public housing development, matched characteristics	Cohort; 2 sites; N=136; 2 year; attrition 46%	Income; receipt of public benefits; employment; educational aspirations; self esteem score; planning capability score; stress and anxiety score (no significance or effect sizes reported). Multivariate analysis indicated that comprehensive service delivery may have improved educational aspirations, self-esteem, and sense of control over one's life.	The small sample, large attrition and usual problems with cohort samples prevent firm conclusions from being drawn.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Starrfield et al (1995); Israel;	Mental health; mentally ill; no population characteristics reported.	Psycho-social rehabilitation (4 phases): inpatient unit, training apartments (halfway house), supervised community housing, independent housing. Duration of contact not reported. Prof grp: social wkr, nurse & psychologist.	None	Cohort; N=98; 5.95 years (mean) ; 7% attrition	Hospitalisation rates 65% before discharge to 12% in community (e.s.=1.90)	A high effect size shown but one group design so no firm conclusions can be drawn.
Stretch & Kreuger (1992); USA; Ford Foundation	Social Services and Salvation Army; families; 88% Female (73% women & children); 80% African American; 2.6 mean children per household; 1.3 mean adults per household	Emergency shelter, CM and follow up in the community: Includes: income maintenance strategies, targeted educational services, child care, health care, life skills training (money management, parenting, home maintenance, social skills), employment. Duration of contact: mean 33 days. Prof grp: soc wkr	None	Cohort; N=201; 3.5 years (mean); 56% attrition	Additional homeless episodes 16.5%; Income$443 per month; employment 28%; dependence upon extended family 47% (no e.s or significance levels can be computed)	A descriptive study which just describes the population at follow up - not changes from baseline - no firm conclusions can be drawn due to the methodological weaknesses, with no linking of intervention descriptions to outcomes. Outcomes very descriptive, no validated outcome measures used.
Tollet & Thomas (1995); USA	Health service; veterans; mean age 47yr; 100% male	12 1-hour small group sessions to instill hope using theory based nursing intervention. Two main themes: reality surveillance (assistance in searching for reasons to hope); defining and redefining goals. Prof grp: nurse.	Waiting control group - no treatment	Quasi-expt; N=33; 1month; 17% attrition	Hope(+ve p<.001); self efficacy (ns); self esteem (ns); depression (ns)(no e.s.)	High attrition rate, small sample and biased sample, since the control group were aware they were to receive the treatment

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions

Toro et al (1997); Buffalo, USA; US Dept Labour;	Employment; mixed population: mentally ill, substance abusers and families; mean age 38yr; 58% male; 25% veterans;
	51% African American.
		ICM :A holistic approach combining services concerned with job training-placement, locating permanent housing and support services (model adapted from mental health field). Duration of contact 4-8 months. Prof grp not clear.	No treatment	RCT;
				N=105;
				18 months;
				49% attrition
					Days homeless (e.s.=-.25);
					psychological symptoms(e.s.=.63);
					social support (e.s.=.41);
					use of alcohol (e.s.=-.01);
					income (e.s.=-.47);
					housing quality (e.s.=71);
					physical health (e.s.=-.09).
						Despite moderate effects in four outcomes, high attrition and an over representation of mentally ill people in the follow up sample pose serious threats to the generalisability of this study.

Whelan 1992; Minnesota, USA; NIAAA / NIDA	Social; homeless substance abusers; mean age 29; 100% male; 52% white ; 100% substance abuse problem	ICM including aggressive outreach and continuous care (adapted from the Programme for Assertive Community Treatment (PACT) model). Referral for other supportive services. Caseloads of 15-20 thus greater opportunity to provide and coordinate services. Prof grp: social workers. Duration: determined by client's needs.	Intermediate CM with caseloads of 40-50, less time spent developing close relationships with clients and more time spent on practical issues.	RCT;
				2 sites;
				N=107;
				3 years;
				attrition 43%
					Use of alcohol(e.s.=.04);
					use of alcohol (score)(e.s.=.32);
					use of drugs(e.s.=-.16);
					use of drugs (score) (e.s.=.00);
					employment(e.s.=.14);
					employment (score)(e.s.=.00);
					economic security(e.s.=-.26);
					medical problems(e.s.=.49);
					medical problems (score)(e.s.=.37);
					psychiatric problems(e.s.=-.20);
					psychiatric problems(score) (e.s.=-.38);
					housing permanence(e.s.=.33)
						The two CM interventions became more similar than was intended. Nonequivalent groups at baseline. A control group was implemented but sufficient standardised data was not collected. Few differences in outcome between the two CM groups, however no firm conclusions can be drawn due to these weaknesses in design and the similarity of implementation.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Wright 1992; Los Angeles, USA; NIAAA / NIDA	Health; homeless substance abusers; mean age 29; 85% male; 49% Black ; 100% substance abuse problem	2- phase residential programme involving a 90 day clinical treatment and a subsequent 120-day recovery programme. The first phase involved assessment, individual counselling, self help, literacy classes, pre employment training, and public speaking. The second phase provided clients time to develop a foundation in sobriety, housing and employment assistance, and opportunities to develop social support networks. Prof grp: (CM) not specified.	Usual care (first phase only)	CCT; 2 sites; N=131; 10 months; 50% attrition	Use of alcohol(e.s.=.66); use of alcohol (score)(e.s.=.73); use of drugs(e.s.=.04); use of drugs (score) (e.s.=.39); employment(e.s.=-.06); employment (score)(e.s.=-.19); economic security(e.s.=-.09); medical problems(e.s.=-.31); medical problems (score)(e.s.=-.28); psychiatric problems (e.s.=.72); psychiatric problems (score) (e.s.=.65); housing permanence(e.s.=.08); housing independence(e.s.=.16)	Attrition rates high, baseline nonequivalency, varying follow up - likely to be longer in control group, non-random sampling, the follow up sample was unrepresentative of the population - greater proportion of programme completers. Positive therapeutic effect in favour of the treatment group but no firm conclusions can be drawn due to methodological weaknesses of this study.
Zimmer 1992; New York, USA; NIAAA / NIDA	Social services; alcoholic women; mean age 29 yrs; 100% female; 71 % Black; 100% substance abuse problem	Outreach-engagement teams in hotels and family shelters; acupuncture therapy for relief of withdrawal symptoms and maintenance in recovery; literacy training; housing /employment counselling; child care assistance; and advocacy in family welfare issues. Duration not reported. Prof grp: (CM) not specified.	A non-equivalent comparison group - came to the treatment clinic through means other than contact with outreach workers - ie 2 methods of implementing the same intervention	Descriptive cohort study; 2 sites; N=202; 2 year ; attrition 62%	Use of alcohol(e.s.=-.07); use of alcohol (score)(e.s.=.46); use of drugs(e.s.=.07); use of drugs (score) (e.s.=-.73); employment(e.s.=.11); economic security(e.s.=.56); medical problems(e.s.=-.24); medical problems (score)(e.s.=-.22); psychiatric problems(e.s.=-.16); psychiatric problems(score) (e.s.=-.10); housing permanence(e.s.=-.28); housing independence(e.s.=-.45)	Attrition rates very high, nonequivalent comparison group, lack of randomisation, unrepresentative follow up group (greater problems). Although significant positive effects were found on some outcomes (3/12) the limitations of the design and implementation make firm conclusions impossible.

Homeless Families

Only four studies focus on the evaluation of services for homeless families (Shlay and Holupka, 1992; Stretch and Krueger, 1992; Rog et al, 1995; Helvie and Alexy, 1992) and one further study researched families along with other populations (Toro et al, 1997). These studies are particularly relevant to this thesis. All studies were based in North America and four studies predominantly focussed on transitional housing services for homeless families and services offered in permanent community based housing (Stretch and Kreuger, 1992; Rog et al, 1995; Helvie and Alexy, 1992; Toro et al, 1997). The focus of all the studies is how services can be enriched, usually by the addition of a case manager who provides a link to a variety of needed services (Shlay and Holupka, 1992; Stretch and Krueger, 1992; Rog et al, 1995; Helvie and Alexy, 1992; Toro et al, 1997). Typically these include child care, social supports (eg self help groups), job services, health care, mental health care, substance abuse counselling, job training and help for children. The shelters and transitional housing studies tend to utilise on-site services, whereas the more permanent housing studies bring the services to the family using outreach care.

Shlay and Holupka (1992) assessed an intervention which aimed to reduce family reliance on public assistance and to encourage integration into the social and economic mainstream. This was attempted by providing homeless families with accommodation and a variety of on site services including education, job training, health care and child care and support services for teenagers at a Family Development Centre. Families are linked to services through a case manager who determines the needs of each resident and tries to meet those needs by assigning them to an appropriate programme. Key concepts were targeting entire family units, providing on site services and coordinating comprehensive services. It was not expected that families would attain economic independence but that 'steps toward independence' would be achieved. What was interesting about the methods used in this study was its' comprehensive measurement of service utilisation which was variable across the families studied (discussed further in chapter 3). However, the small sample, high attrition rates and inadequate reporting of results make it impossible to generalise from these results.

An interesting longitudinal observational study, relevant to this thesis is the work of Stretch and Kreuger (1992) who note in their preamble:

> "Other than anecdotal evidence, there are no systematic data which chart the outcomes and impacts of case managed community networked resources directed to ensure continual functioning of formerly homeless families in the community after their initial homeless crisis has been resolved" Stretch and Kreuger (1992) p74.

These authors followed up families who had previously resided at an emergency shelter, Family Haven in St. Louis, USA. The program provided a structured case management model for homeless families and children to promote self-sufficiency. This consisted of a five stage treatment plan: 1) prevention, 2) crisis intervention, 3) stabilization, 4) resettlement/ transitional housing, 5) community reintegration, helping to move families beyond the cycle of homelessness. Out of families seen from 1983-1987 approximately half who had been placed in relatively permanent settings such as public, privately rented or purchased housing (456/875). Of these 201 (44%)were located and interviewed in 1989. Outcome measures included employment & income, dependence upon extended family, multiple family occupancy housing, additional homeless episodes and a number of *self reported ratings* about neighbourhood, current and past residences and *family well being* although detail of measures used is lacking. The main findings were that only 1 family in 6 (16.5%) became homeless again. There is no additional outcome information on the remaining 249 (55%) families; thus the impact of comprehensive services cannot be determined. Those who received a section 8 placement[4] were less likely to experience subsequent homelessness (6%) compared to families who did not receive a Section 8 certificate (33%). Due to the non-random sampling methods and the retrospective nature of this study, the authors admit that they only observed the community functioning of a sample of 'best served' clients, who received a full range of case management services and were placed in permanent housing. Without research on the other families, strong conclusions about efficacy of the programme as a whole cannot be drawn; the authors were unable to fill the

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[4] A section 8 certificate provides that the family pays 30% if its income for both rent and utilities (Rog et al, 1993)

'systematic data' gap that they identified.

Rog et al's (1995) study is essentially a descriptive cohort evaluation which examines the implementation of service-enriched housing for families who have previously been homeless. Despite the large size (n=924) and although it is the first large scale demonstration program evaluating service-enriched housing for homeless families, the researchers so far have failed to publish the impact of the program per se. The participation of families was tracked in nine programme sites, and outcome measurement was attempted. Synthesis was difficult as different selection procedures were used in the nine study sites and different groups were targeted (such as families experiencing domestic violence). Differing models of case management and service access are described. The most frequent activities included arranging services, visiting clients and working with families developing skills in areas such as budgeting. As for outcomes, residential stability was measured in 601 families at 18 month follow up (88% were still in section 8 housing). It is difficult to draw any conclusions from the preliminary client outcome data. Although the study lacks a control group, external validity is increased by the high number of sites involved. This study is also discussed further in chapter 3.

Helvie and Alexy (1992) report another descriptive study where the policy of offering families after-shelter case management for up to 1 year was examined. An advisor worked intensively with families helping to locate resources, assisting with application processes, providing transport when necessary, and acting as advocate. As with the other studies, some families needed minimal assistance, while others needed more intensive assistance. Outcomes were compared for a sample of families studied before the programme started (n=80) with a sample who received intensive case management (n=96). The length of stay in the shelter in the cohort before the intervention of the case manager model was 31.1 days; this was reduced to 22.8 days in the cohort after the case management programme was implemented. Moderate effects were achieved. Before the program 40% of families were placed in permanent housing compared to 67% of families who received case management (e.s.=0.52) and there was an increase in the proportion who maintained their independence in housing (100% in the case management group compared to 50% ; e.s.=0.71). However, the before and after study design is weak, the client group is not described, levels of attrition are not given, time frames for the outcomes are not specified explicitly (1 year assumed) and the statistical significance of the findings are not described. As so often in these studies the authors call for further research using an experimental design and a longer follow up.

All these studies of homeless families reported positive results but because of the observational methodologies used and other numerous methodological problems, the conclusions are subject to bias and are not robust. RCTs are needed to investigate efficacy claims.

The only experimental study which included homeless families in their target population was Toro et al's (1997) evaluation of an intensive case management intervention in Buffalo, USA. The percentage of families included in the follow up sample was not explicitly reported. It was reported that 44% were female, 46% did not have a mental illness and that there were 37 children in the follow up sample. It was also noted that the mentally ill participants were easier to follow, so one can assume the percentage of families in the follow up sample was low. This coupled with the high attrition rate (49%) and non-equivalent control group makes the generalisability of these results dubious, although this is one of the few studies which attempted blind assessments. The intervention assessed a comprehensive service which included job training, location of permanent housing, and support services. Central to this was intensive case management, offering linkage to services. The control group received no extra interventions. The outcomes measured over an 18 month period were days homeless, use of alcohol, income, physical health, social support, housing quality and psychological symptoms, but only the latter two outcomes produced moderate effects, both control and intervention groups tended to improve over time on most outcomes.

Other Relevant Studies:

Of the other studies excluded from the second stage a further 10 studies attempted an experimental design: Cauce et al (1994) with homeless adolescents, Zimmer (1992) with homeless women with alcohol problems, Tollet and Thomas (1995) with homeless veterans, Drake et al (1997), Lipton et al (1988) and Redelmeier et al (1995) with homeless mentally ill and Argeriou (1992), Hauge (1992), Whelan (1992) and Wright (1992) with homeless substance abusers. Cauce et al (1994) was rejected as it was incomplete and Tollet and Thomas (1995), Drake et al (1997), Hague (1992) and Zimmer (1992) were not randomised. The other five studies were excluded mainly because appropriate methods of random assignment were not described, respondents were not comparable to non-respondents, assessors were not blinded, outcomes were not validated and/ or the control and treatment groups were not comparable at entry to the studies (see table 2.7a).

Many of these studies evaluated case management interventions. Two of these studies will be described in more detail because of their relevance to the study reported in this thesis.

Homeless adolescents

One study sought to evaluate the services for an adolescent client group (Cauce et al, 1994). This study used a RCT design, but as the full results have yet to be reported, it has been excluded from the final review despite its fairly robust design. The Seattle Homeless Adolescent Research Project implemented and evaluated an intensive mental health case management program for homeless adolescents. The intensive service was based on nine primary components: assessment, planning, linkage, monitoring or tracking, advocacy, counselling or therapeutic relationship, treatment teams, crisis service and flexible funds. Youths were randomly assigned (pre-prepared sequentially numbered envelopes containing matching number and group assignment) to intensive mental health case management (n=55) or a 'regular' case management program (n=60) (which mainly entailed less contact with clients and higher caseloads) and were interviewed at baseline then again at 3 month follow up. Self reported outcomes on depression, problem behaviour, substance abuse, self esteem, quality of life (LDS) were collected. The Life Domains Scale (LDS; Baker and Intaglaita, 1982) was used to measure QoL. It provides an assessment of satisfaction, rated on a scale of 1 (very unhappy or very dissatisfied) to 5 (very happy or very satisfied), with quality of life in 15 domains. No statistically significant differences were found between the two groups at follow up and this was reflected in the small effects found (e.s.=0.31) (see table 2.6). Both groups significantly improved on scales measuring depression, problem behaviour and substance use and self esteem ($p<.05$). Although the trend favoured the intensive case management group, the design does not allow one to attribute the youths' improvement unequivocally to the case management interventions. It is possible that maturation, or other factors, may have been responsible for the changes detected. The 3-month follow up period for a year long residential program is short: a longer follow up (12 months) was planned but has not yet been reported (personal communication, Anne-Marie Cauce).

Other threats to internal validity were noted. When two interventions are housed at the same site, benefits from the experimental intervention may extend over into the control intervention (Cook and Campbell, 1979). With hindsight Cauce and colleagues propose that ethnographic style interviews with case managers in both groups may help to ascertain to what extent this may have occurred. They also note that it would have been valuable to take baseline assessments of service provided in the regular case management prior to the introduction of the experimental treatment.

Homeless women

Zimmer (1992) sampled from hotels and family shelters and provided outreach engagement teams to alcoholic women. The services provided included acupuncture therapy for relief of withdrawal symptoms and maintenance in recovery; literacy training; housing /employment counselling; child care assistance; and advocacy in family welfare issues. A non-equivalent comparison group was used, sampling women who came to the treatment clinic through means other than contact with outreach workers - ie 2 methods of implementing the same intervention. Moderate positive effects were found on two outcomes (use of alcohol and economic security) but many of the outcomes in the intervention group showed negative effects when compared to the control group. The high attrition rates (62%), the lack of randomisation and an unrepresentative follow up group (greater problems) limit the usefulness of the results of this study.

Conclusion (to the first stage of the review)

Despite the seriousness of the problems associated with homelessness, these individuals often fail to receive services because of a non-responsive service system ill-prepared to meet their needs. It is important to note that the majority of the studies (72%) included in this stage of the review are evaluations of either new services or 'demonstration projects' and therefore likely to have been used, despite their lack of validity and inconclusive results, in funding decisions.

The first stage of the review has shown that there have been many 'evaluative' studies using an observational design. Of course some studies may not have been controlled because of the difficulty in implementation but there remains a disproportionate number of uncontrolled 'before and after' comparisons in the literature. The detailed reporting and discussion in this section should however, emphasise that this review is not discrediting these studies but aims to highlight the 'best evidence' available.

In general the results of studies were not reported explicitly often making the size of effect difficult to establish. The absence of sustained information on the short- and long-term effects of health and social services means that it is unclear how useful these projects may be. Anecdotal information has satisfied purchasers in the past and may well also in the future (Rossi, 1991), yet without research designs that include control groups the evidence base remains deeply flawed and incomplete. Were the participants in these studies successful because of the interventions or were the effects measured a result of maturation or regression towards the mean or some other factor? Anecdotal, follow up studies or uncontrolled 'before and after' studies are not adequate to answer these questions.

In the early stage of the evaluation of services it is generally accepted that qualitative methods may be useful or indeed essential in the formulation of research questions and hypotheses. Later, as many of the authors of the observational studies recommend, experimental methods can be adopted to test these hypotheses.

If the objective of the research is to explore, interpret, or obtain a deeper understanding of a particular clinical issue, qualitative methods are the appropriate ones to use (Greenhalgh and Taylor, 1997). Evaluations based on impressions may be able to detect good or bad practices or gain an understanding of the motivation or frustrations of staff or clients, but without suitable empirical data to back up the impressions of the observer it is impossible to counter the argument that the observer's impressions were misleading or biased (Marshall, 1996 p283).

There are indications that the climate might be changing; the Kings Fund recently (Elizabeth, 1996) documented its funding for innovative projects which model more effective and multi-dimensional responses to the needs of homeless people. The projects will then be subject to an independent evaluation to assess whether their interventions have been effective in accelerating the pace of change and improving collaboration across the health, housing and social care sectors.

Table 2.7a: **Validity ratings for the experimental (RCT) studies: nine essential criteria** (see Box 2.2)

	Described as a RCT	**Complete study published**	**Follow up >=50%**	**Clear description of the interventions**	**Methods of statistical analysis described**	**Sample size >=30 or justified by power calculations**	**Clear validated outcomes**	**Objectives of the study defined**	**Inclusion and exclusion criteria described**
Excluded studies (I) *									
Argeriou (1992)	✓	✗	✓	✓	✓	✓	✓	✓	✓
Cauce et al (1994)	✓	✗	✗	✓	✓	✓	✓	✓	✓
Lipton et al (1988)	✓	✓	✓	✓	✗	✗	✓	✓	✓
Redelmeier et al(1995)	✓	✓	✓	✓	✓	✓	✗	✓	✓
Toro et al (1997)	✓	✓	✗	✓	✓	✓	✓	✓	✓
Wright (1992)	✓	✓	✗	✓	✓	✓	✓	✓	✓
Whelan (1992)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Selected studies (II)									
Braucht et al (1995)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conrad et al (1998)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dickey et al (1996)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hurlburt et al (1996)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lehman et al (1997)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marshall et al (1995)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Morse et al (1992)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Morse et al (1997)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Susser et al (1997)	✓	✓	✓	✓	✓	✓	✓	✓	✓

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* These experimental studies are have been excluded from stage II of the review as they do not fulfil all nine criteria.

A further four *quasi*-experimental studies were excluded from the above table: Drake et al, 1997; Hague et al, 1992; Tollet and Thomas, 1995; Zimmer 1992

Table 2.7b: **Further validity ratings for the experimental studies which fulfilled all nine essential criteria.** (In order to be selected for stage II, studies had to fulfil 2 out of these 4 criteria, see Box 2.2)

	Appropriate methods of random assignment	**Respondents comparable to non-respondents**	**Assessors blinded**	**Control and treatment groups comparable at entry**
Unselected study (I)				
Whelan	✗	✗	✗	✗
Selected studies (II)				
Braucht et al (1995)	✓	✓	✗	✓
Conrad et al (1998)	✗	✓	✗	✓
Dickey et al (1996)	✗	✓	✗	✓
Hurlburt et al (1996)	✗	✓	✗	✓
Lehman et al (1997)	✓	✓	✗	✓
Marshall et al (1995)	✓	✗	✗	✓
Morse et al (1992)	✗	✓	✗	✓
Morse et al (1997)	✗	✓	✗	✓
Susser et al (1997)	✗	✓	✓	✗

Stage Two

The selection criteria presented earlier (Box 2.2) were applied to the experimental studies. Of the 16 RCT studies nine met the inclusion criteria outlined in table 2.7a and 2.7b. These nine studies are then described in detail in table 2.8. Although these studies provide the 'best evidence' of effectiveness there were still some shortcomings. In particular, five of the stage two studies did not adequately describe the process of random assignment so that an independent assessor cannot decide whether or not the process was in fact random. It is not uncommon for studies reported as RCTs to be susceptible to bias in relation to treatment allocation (Stewart and Parmer, 1996). Only two studies carried out assessments which were blind to treatment status (see table 2.7a).

Six of the studies were community based, one was based in residential care and in the community, one in residential care only, and one in an accident and emergency department. Six of the studies evaluated interventions for mentally ill homeless people, two for homeless individuals with substance abuse problems and one studied a predominantly male non-psychotic homeless population. The interventions evaluated were based around a case management or intensive case management models of care. Different case management models were used in the different studies; however, all models involved the use of assertive outreach and case management teams as a primary service vehicle and most were based on Stein and Test, Assertive Community Treatment (ACT) model of case management (Stein and Test, 1985).

The duration of the interventions ranged from one contact to unspecified contacts over a period of 2 years. Duration of contact was over 12 months in five of the studies and greater than 6 months in 7 of the studies. Intensity was not always reported explicitly in many of the studies; very often this was reported in terms of the size of caseloads which in the intervention group was often a maximum of 12-15 per case manager.

There is little attempt in the literature to tease out exactly what components of the interventions are effective. Indeed, only five of these studies specifically measured the input of services in relation to the outcomes (this will be discussed more fully in Chapter 3).

Table 2.8: **Table of stage two studies: principal results and design characteristics**

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Braucht et al (1995);Denver, USA; NIAAA National Institute on Alcohol Abuse and Alcoholism	Social Services; Individuals with substance/ alcohol problem; mean age 35; 85% male; 56% caucasian; 74% alcohol is primary substance of abuse; 38% have drug problems.	Clients had access to all the services offered by comprehensive substance abuse service agency which included ICM. CMs worked in pairs with an average of 15 clients per pair, to identify the individual service needs of each client and to match these needs with the most appropriate agency or service and to provide continuity of manager contact and service delivery. Duration: 4 month treatment period and 6 months follow up. Professional group: social workers.	Clients had access to the services offered by comprehensive substance abuse service agency but were not offered CM.	RCT; N=323; 6 months after discharge; 13% attrition	Alcohol use; drug use; employment; housing status; illegal activities; life satisfaction; mental health; living skills; physical health; social relations (all non significant; no e.s. can be calculated).	Context: services were plentiful and easily accessed by clients without much assistance. ICM had no effect on outcomes.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions

Conrad et al (1998); Illinois, USA; Department of Veteran's Affairs, NIAAA	Dept of Veterans Affairs, NIAAA and Mental Health; homeless addicted male veterans; mean age 40yr;
	100% male; 100% chemical dependency; 75% African American
		Case managed residential care (CMRC) (staff: client 1:10): average length of stay 3.4 months. A social treatment model (cognitive, behavioural and problem solving) was used that focused on here and now issues. Substance abuse counselling, vocational services, housing placement, referral to multiple support services. CM (staff: client 1:25) continued into the community living phase (6 -11 months). Prof grp: social workers, rehab therapist and substance abuse counsellors	Customary inpatient treatment (14-21 days): substance abuse education, group therapy, self help services, OT, health care, material assistance and referral to multiple support services. Then customary community care (12 mths), out patient, other services	RCT;
				N=358;
				12 mths post treatment;
				41% attrition
					Employment (e.s.= -.12);
					alcohol use (e.s.=-.06);
					psychiatric problems (e.s.=-.10);
					housing/homelessness (e.s.=.11)
					illegal activity (no e.s.);
					medical problems (no e.s.);
					drug use (no e.s.).
						Contamination may have occurred in the comparison group receiving a similar service intensity without the CMRC program.

Dickey et al, 1996; Boston, USA; NIMH	Mentally ill; mean age 37 yrs; 70% male; 54% African American; 70% schizophrenia; 70% co-morbid substance abuse.	Evolving consumer households: shared housing intended to maximise independence and minimise the presumed risks of independent living + CM (provided community adaption skills training and arranged for treatment with a local CMHC). Professional group: social worker.	Independent living apartment + case management (provided community adaption skills training and arranged for treatment with a local CMHC).	RCT; N=112 18 mths; attrition 8%.	Time housed; housing stability; mental health status; community functioning; inpatient admission; CM hours; institutionalisation; medication visits; individual therapy (hours); group therapy (hours); clubhouse (hours); crisis visits (no inpatient); day care treatment (hours) (none significant)(no e.s.).	Small sample, high degree of variability, unconventional model limits generalisability. The data did not support the hypothesis that staff and peer support in the evolving consumer households would reduce the likelihood of inpatient admission.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Hurlburt et al, 1996; USA; National Institute of Mental Health and Centre for Mental Health Services Grant	Mental Health Services (Social services and housing); Mentally ill currently homeless or at risk of becoming homeless; 67% male; 63% white; 55% schizophrenia.	4 experimental conditions: Supportive CM (comprehensive vs traditional) and one of two levels of access to independent housing (using Section 8 certificates): I1)Comprehensive CM with access to S8 cert. I2) Traditional CM with access to S8 cert. I3)Comprehensive CM without access to S8 cert. I4) Traditional CM without access to S8 cert. Duration: 2 years. Prof grp: social workers.		Randomised factorial design; N=362; follow up 6, 12, 18, 24 mths; missing data 12%.	*CCM vs TCM* Stable housing (any type) (ns); stable housing (independent)(ns); (Other outcomes not pursued due to non-significant result therefore groups 1 & 2 combined and 3 & 4 combined) *S8 vs no S8* Stable housing (any type)(ns); stable housing (independent)(+ve p<.01 Those clients with access to S8 were 7.56 times more likely to achieve stable independent housing) (e.s.=.65); time to achieve stable housing (+ve p<.01 Those with S8 certs were able to stabilised faster. They were 8.4 times more likely to achieve stable housing in the first 6 months) (e.s.=1.20); engagement with services (p<.05 +ve clients without access to S8 certs were 2.03 times more likely to drop out); housing consistency (ns)(no e.s).	Access to Section 8 housing increased the probability of achieving stable independent living arrangements and of continued contact with CM services.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Lehman et al (1997); Baltimore, USA; The Centre for Mental Health Services, University of Maryland	Mental health; mentally ill; mean age 38yr; 68% male; 72% African American; 59% schizophrenia diagnosis; 71% co-morbid substance use disorder	Assertive Community Treatment (ACT)- preventing symptoms, preventing relapse, meeting basic needs, enhancing QOL and optimising instrumental and social functioning. Four phases: engagement, stabilisation, maintenance and ongoing treatment and discharge (not necessarily sequential). Duration not specified. Prof grp: social worker; CMs; consumer advocates; family outreach worker; nurse.	Usual service: 7 CMHC, several community based psych. Inpatient & emerg. Facilities. HCH: outreach, advocacy, CM, PHC, MH counselling & long term outpatient MH care. Provider network: privately run shelters, missions & soup kitchens.	RCT; N=125; 12 months; 17% attrition	Service:inpatient days (+ve p<.01) (e.s.=.41); emergency dept visits (+ve p<.009); out patient MH visits(-vep<.001); substance abuse out patient visits (-ve p<.001); Housing: stable community housing (e.s.=.46) days on the street(e.s.=.31); days in shelter (e.s.=.07) Satisfaction (ns); Clinical: symptoms (ns); self rated health status (ns); Quality of life: objective & subjective QOL (ns)(no e.s.).	Contamination may have occurred in the comparison group receiving a similar service intensity (S8 housing cert.s and the city funded an additional ACT-style programme at another CMHC). On the final follow up period the ACT group used fewer crisis oriented services and more outpatient visits. The rest of the outcomes were not significantly different.
Marshall et al 1995; Oxford, UK; Medical Research Council	Social services; Adults with long-term mental disorders; 49% 30>49 yrs; 85% male; 74% schizophrenia diagnosis	CM - arranged an assessment of need, a comprehensive service plan and delivery of suitable services and monitored and assessed the services delivered. Different from the USA CM model in the therapeutic and caring elements (Tyrer, 1995). Professional group: social worker.	Usual services (not described).	RCT; N=61; 12 mths; 24% attrition.	Quality of life (e.s.=0); social behaviour; psychiatric symptoms; needs assessment (no e.s.; not significant) .	Deviant behaviour was reduced in CM group at 14 mths (p<.01) but not clinically relevant.

Author, year, country and funding	**Service & Population characteristics**	**Intervention (duration /professional group)**	**Control input**	**Study design; no. sites; sample size (follow up); final follow up; attrition**	**Outcomes with effect size (e.s)**	**Conclusions**

Morse et al 1992; Missouri, USA NIMH	Mental Health; mentally ill; mean age 34 y; 58% male; 53% non white (mostly African American); 30% schizophrenic.	Continuous treatment- outreach to shelters, ICM to help clients secure basic resources and services, staff to clients (1:10), service activities targeted to 3 areas: individual change, environmental change and support for bridging the gap between clients needs and enviromental resources. Prof grp: (CMs) not specified .	I2: day time drop in centre and I3: traditional outpatient treatment	RCT;
				N=102;
				12 mths;
				attrition 43%
					CCT vs drop in centre:
					Satisfaction (e.s.= 1.16);
					monthly income (e.s.=.70);
					homelessness (e.s.=1.06);
					psychiatric symptoms (e.s.=.08);
					self esteem (e.s.= .21);
					alienation (e.s.=.13);
					interpersonal judgement(e.s.=-.03);
					alcohol abuse (e.s.=-.54);
					contact with treatment programme; resource utilisation (contact with any of 23 other agencies)(e.s.=.34).
					CCT vs outpatient clinic:
					Satisfaction (e.s.=1.12);
					monthly income (e.s.=.43);
					homelessness (e.s.=.39);
					psychiatric symptoms (e.s.=-.16);
					self esteem (e.s.=-.15);
					alienation (e.s.=-.07);
					interpersonal judgement (e.s.=.03);
					alcohol abuse (e.s.=-.41);
					contact with treatment programme; resource utilisation (contact with any of 23 other agencies) (e.s.=1.31).
						There were some intervention effects: Clients in the continuous treatment programme had more service contact, were more satisfied with their treatment, spent fewer days homeless and used more community services and resources than clients in the other two programmes.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions

Morse et al, 1997; Missouri USA; NIMH.	Mentally ill recruited from a psychiatric emergency room and inpatient units; mean age 35 yrs; 58% male; 55% African American; 66% schizophrenic; 24% substance disorder; 25% personality disorder.	I1:ACT - comprehensive services provided for unlimited period - intensive individualised treatment, responsibility for providing and co-ordinating all services needed by the client, persistent follow-up and service delivery. Outreach and engagement strategies used. Treatment was client led. I2: ACT + community workers (non-professional) to assist with activities of daily living and leisure activities. (1:10).
		Duration: unlimited.
			Broker CM - to develop an individualised service plan for the client, arrange for and purchase mental health and psycho-social services from various service providers, monitor and adjust mix of services based on clients changing needs (1:85).	RCT;
				N=135;
				18 mths;
				24% attrition
					ACT vs ACT+comm. workers:
					Satisfaction (e.s.=.51);
					monthly income (e.s.=.21);
					homelessness (e.s.=.24);
					anxiety and depression (e.s.=.02);
					hostility - suspicion (e.s.=-.02);
					thought disorder (e.s.=-.24);
					withdrawal - elevated mood (e.s.=-.27);
					unusual activity level (e.s.=-.02);
					self esteem (e.s.=.45);
					need for drug need for drug treatment (e.s.=-.15).
					
					ACT vs broker CM:
					Satisfaction (e.s.=.87);
					monthly income (e.s.=.45);
					homelessness (e.s.=.61);
					anxiety and depression (e.s.=.50);
					hostility - suspicion (e.s.=-.15);
					thought disorder (e.s.=-.32);
					withdrawal - elevated mood (e.s.=.29);
					unusual activity level (e.s.=.26);
					self esteem (e.s.=.24);
					need for drug need for drug treatment (e.s.=-.12).
						Number in each group was not specified. Threat to internal validity: Broker CM had a waiting list which resulted in clients forgetting appointments, becoming lost, being denied treatment or refusing treatment. Some evidence to suggest ACT is more effective than broker CM at increasing days in stable housing, some psychiatric symptoms and patient satisfaction.

Author, year, country and funding	Service & Population characteristics	Intervention (duration /professional group)	Control input	Study design; no. sites; sample size (follow up); final follow up; attrition	Outcomes with effect size (e.s)	Conclusions
Susser et al, 1997; New York City, USA; National Institute of Mental Health	Mental Health; mentally ill; 60% <=35yrs; 100% male; 74% African American; 68% schizophrenia; 46% alcohol dependence.	Critical Time Intervention (CTI): The clinical team (not described) devises a plan for the transfer of care from the shelter to other formal and informal supports. This may focus on areas of potential risk eg medication adherence. A CTI worker is assigned to implement the plan and acts as an advocate for the client. Prof grp: none required but needed experience working with this population. Duration: 9 months CTI followed by 9 months usual services.	Men are referred to mental health and rehab programmes - no extra assistance given to engage in services.	RCT; N=94; every 30 days for 18 mnths; 8% attrition.	Homeless nights in 18 months: none (e.s.=0.19); extended homelessness (>=90 nights) (e.s.=1.21).	Subjects included once they completed the on-site treatment. Small sample, but large effect and good follow up. Not all outcomes reported. The data supported the hypothesis that CTI reduces homelessness in this population. Results of other outcomes have not yet been reported. Virtually complete follow up and assessments were blind to treatment status.

Mentally ill homeless

Marshall et al (1995); Hurlburt et al (1996); Lehman et al (1997); Morse et al (1992) Morse et al (1997) and Susser et al (1997) all evaluated case management models of care for mentally ill homeless people sometimes in addition to access to housing. Although these studies were on the whole strong, there were still a few shortcomings. Only Lehman's and Marshall's studies specified the methods of random assignment and only Susser's study carried out assessments blind to treatment status. In Marshall's study the respondents were not comparable to non-respondents.

Significant positive effects on homeless outcomes were only identified in 3 of the studies: Morse et al (1997), Hurlburt et al (1996) and Susser et al (1997). No evidence of a treatment effect was reported in Marshall's study or Dickey et al (1996). Morse et al (1992) and Lehman's study reported no evidence of an effect due to methodological weaknesses. In Morse's study the high attrition rate may pose a serious threat to the generalisability of these results. In Lehman's study differences between the two arms of the study may have been obscured as the services in the comparison group may not have represented usual services. They also received S8 housing certificates and the city funded an additional ACT-style programme at another community mental health centre. Information on this possible contamination for individuals was unavailable.

In Hurlburt and colleagues' study (1996), clients diagnosed with severe mental illness who were either currently homeless or at high risk of becoming homeless were assigned to one of four different experimental conditions: i) comprehensive case management with access to S8 certificate (S8) (n=90); ii) traditional case management with access to S8 (n=90); iii)comprehensive case management without access to S8 (n=91); iv) traditional case management without access to S8 (n=91). Clients with comprehensive case management were no more likely to achieve stable housing or stable independent housing than clients with only traditional case management. Further analysis was then restricted to the combined groups ie those with and those without access to S8 housing. Those clients with access to S8 were more likely to achieve stable independent housing ($p<.01$) (e.s.=0.65) and were more likely to achieve stable housing in the first 6 months ($p<.01$) (e.s.=1.20). Access to S8 housing markedly increased the probability of continued contact with case management services; clients without access to S8 certificates were more likely to drop out (p<.05). The authors note that while stereotypes may suggest that the mentally ill homeless do not have the capacity to maintain independent housing, these results show that many do when access to decent affordable housing is available. What is also interesting about this work is the measurement of housing outcomes over time, which presents a clearer picture of the impact of the intervention.

In Susser et al's (1997) study patients discharged from an on site psychiatry program in a shelter to community housing were randomly assigned to treatment or 'usual services' groups. For those subjects assigned to the treatment group (n=47) the clinical team devises a plan for the transfer of care from the shelter to other formal and informal supports, focussing on areas of potential risk (eg medication adherence). A critical time intervention (CTI) worker is assigned to implement the plan and acts as an advocate for the client. The control group sample (n=47) are referred to mental health and rehabilitation programmes but no extra assistance is given to engage in services. There was virtually complete follow up in this study and assessments were blind to treatment status. Subjects were followed for 18 months and the number of homeless nights in 18 months was the primary outcome measure. Other clinical outcomes have not been reported. During the last month of 18 months 4 of the CTI group and 11 of the control group were homeless: CI (difference) relative risk 0.36 (0.12,1.06), NNT 6.9 (3.5 to 284) p=.05. and the risk of major homeless episode was lower in the CTI group (survival analysis +ve p=.003). Extended homelessness (> 54 nights) occurred in 10 of the men in the CTI group compared with 19 in the usual services group CI (diff) relative risk 0.53 (0.27,1.01), NNT 5.3 (2.7 to 130) p=.045. No significant differences between the two groups were detected on intermediate homelessness (30-54 nights) and transient homelessness (1-29 nights). The data supported the hypothesis that CTI reduces some, though not all, aspects of recurrent homelessness in this population. The effect of CTI pertained specifically to the extended homelessness. The risk of periods of shorter term homelessness was not reduced.

In another study to evaluate the effectiveness of case management for homeless mentally ill people, Morse et al (1997) compared three types of case management. Subjects recruited from a psychiatric emergency room and inpatient units were randomly assigned to: 1) assertive community treatment (ACT), in which comprehensive services were provided for an unlimited period; 2) ACT augmented by support from community workers (para professionals) and 3) broker case management, in which the clients needs were assessed, services were purchased from multiple providers. The study had a 76% follow up rate and the total number of subjects in the study at the final follow up (18 months) was 135 (the number in each group was not specified). The study provided some evidence to suggest ACT is more effective than broker case management at reducing homelessness (e.s.=.61), anxiety and depression (e.s.=.50) and patient satisfaction (e.s.=.87). This group (1) also had more contacts with service agencies than the other two treatments. There were few treatment effects when ACT is compared to ACT augmented by support from community workers; moderate treatment effects were noted in satisfaction with services and self esteem.

The cost-effectiveness of case management for homeless people was explored in this study (Wolff et al, 1997). Cost data were collected for a sub sample of clients involved in the randomised design of the three conditions. The comprehensive cost analysis showed that there were no significant cost differences between the three programmes; thus given the better client outcomes (client contact, psychiatric symptoms and client satisfaction) in the ACT programmes, these were more cost-effective than broker case management.

Minimal treatment effects were found in Lehman's study which also looked at the effects of ACT (n=67) against the usual services (n=58) offered to mentally ill homeless people in Baltimore. The treatment group accumulated significantly fewer in-patient days than the comparison subjects (p<.01; e.s.=.41) and spent significantly more days in stable community housing (p<.01; e.s.=.46). The treatment effects were only moderate. No significant differences were detected between groups on outcomes such as: satisfaction; symptoms; self rated health status and quality of life. One explanation given for the lack of differences between the groups is the focus of the intervention on clinical stabilisation and housing. A further explanation for the lack of differences between the groups was that contamination may have occurred. The comparison group may in fact have been receiving a similar service intensity (S8 housing certificates and an additional ACT-style programme at another community mental health centre).

Homeless substance abusers

Two methodologically sound studies evaluated comprehensive substance abuse services (Braucht et al, 1995; Conrad et al,1998). However treatment effects were not detected. Braucht et al (1995), reported the findings from a RCT where 85% of the respondents were males and where alcohol was the primary substance of abuse in 74% of subjects. The study evaluated the value of services offered by a comprehensive substance abuse service agency which included intensive case management, linkage to appropriate agencies and continuity of care from social workers (n=163). The control group (n=160) had access to the service offered by the agency but were not offered case management. 83% of subjects recruited to the study were followed 6 months after the 4 month treatment programme. No significant differences were found between groups on any of the outcomes measured: alcohol use; drug use; employment; housing status; illegal activities; life satisfaction; mental health; living skills; physical health; social relations. This may have been because services were plentiful and easily accessed by clients without much assistance.

Conrad et al evaluated the effectiveness of case-managed residential care for homeless addicted male veterans in reducing substance abuse, increasing employment, decreasing homelessness and improving health. Subjects were randomised to the social treatment model (n=178) and the customary inpatient and outpatient treatment (n=180). 59% of subjects recruited to the study were followed 12 months after treatment. Although some treatment effects were found during the treatment year, no significant differences were detected between groups at twelve months follow up on any of the outcomes (employment, alcohol use, drug use, psychiatric problems, homelessness, illegal activity and medical problems). Effect sizes were small and more often favoured the control group. The lack of treatment effects may have been due to contamination which may have occurred in the comparison group who received similar service intensity without the case-managed residential care programme.

DISCUSSION

Many studies investigating health and social interventions do not fulfil the inclusion criteria chosen for this review. Even the studies included in stage two were flawed in various ways (see table 2.7b): six of the studies did not adequately describe the process of random assignment; only one study carried out assessments which were blind to treatment status; one study failed to have comparable respondents and non-respondents, and another did not have comparable control and treatment groups at entry. That said, all stage two studies did satisfy each of the nine initial inclusion criteria (see Box 2.2).

This review has attempted to impose a hierarchy of evidence; the strength of the conclusions on the effects of particular forms of care reflect the strength of the evidence available. The first stage of the review has shown that the many apparently positive effects of studies using before and after designs or flawed controlled studies cannot be attributed to the intervention. It is likely that some researchers in the field would consider this review with scepticism, perhaps those who have argued that RCTs are impossible with this population. This is not the case. RCTs have been shown to be feasible with the most needy homeless clients, in studies which maintain external validity.

Both stages of the review have shown that most of the studies using a controlled design were evaluating relatively intensive interventions with people in crisis situations; whereas the treatment offered to, say homeless families, may have been less intensive. This difference may be a reflection of the political necessity of dealing with particular categories of patients such as the mentally ill homeless; if they are not treated expeditiously the repercussions are visible and there is public outcry. Hence there is availability of funding for well designed controlled studies for the mentally ill and drug-using homeless.

Or the difference in methodology might reflect the differing ideologies of the researchers who focus on the different groups of homeless people. Those who focus on the mentally ill may favour the medical model and positivist ideology. Whereas researchers who focus on other homeless populations, with more diverse health and social problems may come to the research from a sociological stance. Building on a 'holistic' model of health may relate more to post-positivist ideology and hence less controlled designs.

One of the main criticisms against the experimental paradigm are that the methods are difficult to implement in many circumstances, 'causing' many social programme evaluations to use non-experimental methods. The first stage of this review has been sufficiently expansive /descriptive and reported as fully as possible, to have the potential to inform the design of future services and evaluations.

In general, the aim of all studies was to improve in some way the lives of homeless people. A brief look at the third column of tables 2.6 and 2.8 highlights the emphasis on case management and advocacy services along with various housing and residential services. It is unfortunate to have to exclude so much interesting research on methodological grounds and it should be stated that this was not the original aim of the review. Some of these studies merit further discussion. In particular Rog et al's (1995; 1997) study funded by the Robert Wood Johnson Foundation and US Department of Housing and Urban Development evaluated case management for homeless families in nine sites across the US. The hypothesis underpinning the project was "services needed by families generally existed in the community but were not accessible". A long term model of care was used to ensure that services could be accessed by families once they left the homeless shelters and moved into their own housing. The results on the outcome data still remain to be fully published but the details on implementation provide a comprehensive description of the intensive case management models. Strategies for improving the delivery of services are suggested: teams sharing responsibility for cases to maintain an intensive level of direct client contact, using case management assistants for certain duties; developing peer supports with formerly homeless who have successfully navigated the system; providing training and supervision for case managers; and developing standards of care.

Also of particular interest was Toro et al's (1997) and Cauce et al's (1994) studies which did not focus completely on a mentally ill client group but attempted controlled studies which tested the effectiveness of intensive case management. Unfortunately the full results for Cauce et al's (1994) study are not yet available and the results for Toro et al's study showed both positive and negative effects when compared to the control group. What is striking about the studies included in the review is the number of caveats inserted by the authors about the danger of generalising from the results; and prolific explanations justifying the lack of positive effects.

The studies pinpointed in the final stage of the review fall into 3 groups in terms of effectiveness of case management and housing outcomes. Braucht et al (1995), Conrad et al (1998) and Marshall et al (1995) found minimal or no effects for housing or clinical, health, employment and quality of life outcomes. Hurlburt et al (1996), Morse et al (1992) and Susser et al (1997) were able to detect large effects in achieving stable housing or reducing homelessness; whereas Lehman et al (1997), Morse et al (1997) reported moderate effects. Improvement in terms of clinical or quality of life outcomes were reported much less often, although Morse et al (1997) did provide some evidence to suggest that assertive community outreach is more effective than broker case management at reducing anxiety, depression and patient satisfaction and more effective than ACT with community workers as regards improvement in self esteem.

It may be reasonable to suggest that large intervention effects in clinical and quality of life outcomes on homeless mentally ill, those who abuse substances or individuals with personality disorders are difficult to achieve with a case management intervention; given that many of the interventions focus on supporting, stabilising and maintaining individuals in extreme situations rather than producing significant change (Mercier and Racine, 1995). By contrast, homeless people in temporary accommodation are by definition in transition, and may be able to achieve positive outcomes in the medium and long-term. Investment in this population may give a reasonable return, and may protect individuals from the downwards spiral of deprivation and helplessness.

Although one cannot assume that the results of these studies are generalisable to other homeless populations, a number of features common to the studies which fulfilled the methodological criteria for the review may be **transferable** to future research in the field of homelessness. Chalmers argues for results from controlled trials to be transferred into practice:

> "It will not be possible to conclude with any confidence that the results of controlled trials are *inapplicable* in practice. Furthermore, there is a distinct danger that concern about differences between the characteristics of participants in trials and clients receiving care outside the context of trials will be used as an argument for dismissing valid evidence about the effects of care... a leap of faith from this evidence to practice has to be made at some point." (Chalmers, 1989 p26)

The first characteristic is the **integration of social support** within mainstream provision, although the studies on homeless mentally ill people showed that these clients are difficult to engage in traditional services. Most studies attempted to integrate homeless people into flexible services, often utilising outreach methods and existing community, social and health resources, with the longer term aim of integration into mainstream services.

Second, **multi-disciplinary teams** and inter-agency collaboration are useful in most settings. Social and health needs are inextricably linked and this should be reflected in health and social care provision. Failure to address both sets of needs is likely to undermine the success of interventions.

Third, the successful studies used a comprehensive and co-ordinated multi-disciplinary approach to support needy individuals, often using a **case manager to advocate** on behalf of the homeless and to provide links with existing services addressing the clients' varied housing, health, financial, legal, community support and child care needs. Case management for homeless people is also described in depth by Savarese et al (1990) as a technique which can be applied in the provision of health care:

> "The concept of case management is not new to those of us who work among the homeless. In fact, we have been practising it all along. To us, the needs of our patients are paramount. We struggle to orchestrate multiple services for them as we face barriers of fragmented systems." (Savarese et al, 1990 p 301)

Case management, more common in North America, has only recently been adopted in UK as a coordinating mechanism across a range of community care client groups (Holloway et al, 1995). However, the principles of case management are not new, and have been in use in the UK, in particular by doctors, within the confines of the medical model.

Implications for research

Box 2.4 **Implications for research**

- Adopt RCT methodology where feasible
- Reporting studies fully and in a standardised manner
- Employ methods to reduce attrition in follow up studies
- Consider time frames for study protocols - reflect methodological concerns as well as funding levels
- Consider staff morale in relation to the type of research undertaken and the direct implications for the services provided

There are five main implications for research studies in this area (Box 2.4). The most important message is a resounding call for intervention research that conforms to randomised controlled trial methodology. This review shows that despite the inherent difficulties, these types of designs are achievable with a homeless client group and overcome the bias in observational studies which can allow positive outcomes to be inappropriately attributed to interventions.

> "Serious methodological problems should not be used to rationalise the curtailment of research in this area ...Even if research findings are limited by high refusal and attrition rates, benefits of carrying out such research far outweigh the significance of the impediments to methodological rigour." (Bassuk 1985 p32)

From conducting this review, several suggestions arise for researchers reporting their studies. It is essential that RCTs are done well and reported adequately; readers should not have to infer what was probably done. Much effort has been expended in developing evidence-based methods to help improve the quality of reporting of clinical trials (Moher et al, 1998) and it is vital that researchers refer to the CONSORT statement

(Begg et al, 1996; Altman, 1996) which is a checklist of items that should be included in reports of RCTs. In principal this should prevent authors from hiding inadequacies in their studies by omitting important information, although it has been suggested that some may only superficially 'adhere' to these requirements, masking low grade studies (Thornley and Adams, 1998).

The method of *randomisation* should be reported explicitly. The results should be reported in enough detail so that *effect sizes* can be calculated. Researchers should report the *method of data collection* as this may influence subjects response due to (for example) social desirability bias. The method of data collection was better reported in the stage two studies (see table 2.9). Six of the studies used research assistants or trained interviewers to collected interview data. A further two studies used trained clinicians to collect the data. Almost half of the stage one studies failed to report the method of data collection and only 9 studies used trained interviewers or research assistants.

Table 2.9: Data collection in studies included in both stages of the review

Who interviewed respondents?	First stage studies n=24	Second stage studies n=9	All studies n=33
	n (%)	n (%)	n (%)
not reported	11 (46)	1 (11)	12 (37)
interviewers, research assistants	10 (42)	5 (56)	15 (45)
trained clinicians	3 (12)	3 (33)	6 (18)

The difficult position of research interviewers and their need for intensive supervision and administrative support should not be underestimated (Cohen et al, 1993). If the conflicts experienced by the researchers are not dealt with, interviewers may experience distress, the research data may have questionable validity and greater costs may be incurred due to burnout of staff and greater staff turnover.

It may be useful for future researchers *to develop tracking strategies or other ways to achieve higher follow up rates*. Although attrition was only one of the inclusion criteria, it is worth noting that most of the studies included in the review experienced high attrition rates. It is difficult to determine if these reflect intervention inadequacies, differences in the characteristics of the study populations (Bybee et al, 1994) or inadequate follow up strategies. Often attrition was much higher in the control group than the experimental group; in some studies this may reflect failure to engage clients not followed up intensively. The measured effects will then be biassed in favour of those patients that can be tracked which may distort the comparisons. Studies based in the community as opposed to residential studies suffered greater attrition.

A number of authors have suggested methods of increasing response rates for homeless populations. Cohen et al (1993) suggest that the best method of tracking and following up homeless people includes much detective work from speaking to friends to using the same researcher to follow up the homeless person. They also suggest that more attention should be given to the material and personal resources of those collecting the data as well as incentives for respondents. Lipton et al (1988) advise that it is possible to minimize loss of subjects through collaborative relationships between researchers and service providers; Concover et al (1997) suggest that an ethnographic approach is most successful, where one should systematically study a group's culture and where interviewers should empathise with the participants perceptions and feelings. They do note that this increased effort is highly labour intensive and results in higher costs. Toro et al (1997) indicated a number of methods used to encourage participation, including encouraging the interviewer to develop a rapport with the homeless participant, remaining a "friendly face" by continuing to frequent sites where participants "hang out", payment for each interview , persistent tracking of participants. None of these researchers indicated whether approaches should differ for the control group: there may be some difficulty if the researcher frequenting the sites became construed as a regular contact, blurring control and intervention groups. Likewise, the difficulties of being a researcher and remaining impartial has also not been confronted in the literature.

Others have argued that the use of incentives in increasing follow up rates should be considered more carefully (Hough et al, 1996). Eleven of the 33 studies included in this review reported that incentives were offered to the research participants for taking part in the study; 5 of these were for studies included in the second stage of the review. These ranged from a one off $5 payment to $40 for a baseline interview and a further

$20 per follow up interview (table 2.10). The attrition rates in those studies using incentives, varied to the same degree as those studies not using incentives. It is difficult to say whether or not the payments were actually incentives for the participants; the amount of data, type of data, participants and the length of follow up differed in the studies. The better thought out studies, with more rigorous research designs and funding were more likely to use incentives; a higher proportion of the stage two studies offered incentives to respondents. Indeed, all of the second stage studies which used incentives for respondents tracked participants as well as followed them up, i.e. the researchers met them repeatedly in the study rather than directly doing a follow up assessment. It is likely that those studies which tracked people through systems of care found locating individuals easier and consequently were able to achieve higher response rates at follow up.

Table 2.10: Attrition rates and incentives provided in each stage two study

	Attrition	Incentives provided to respondents
Morse et al (1992)	43%	$5 or $10 depending on length of interview
Morse et al (1997)	24%	$5 or $10 depending on length of interview
Lehman et al (1997)	17%	$40 baseline interview; $20 major follow up
Hurlburt et al (1996)	12% missing data	$20 per interview
Susser et al (1997)	8%	funding transportation to interview site
Dickey et al (1996)	8%	cash payments for participating in interviews
Conrad et al (1998)	41%	not reported
Marshall et al (1995)	24%	not reported
Braucht et al (1995)	13%	not reported

The time frames for study protocols should reflect methodological concerns as well as funding levels. Much of the funding for services for homeless is time limited; typically 3 years or often less. This causes difficulties in evaluating demonstration /short term projects. The time taken to recruit and train staff should not be underestimated (Mowbray, 1993 p338) and analysis of data is often required before data collection is complete, when it is time to make decisions on the continuation of funding. Toro et al (1997) recommends that evaluations begin well after an intervention is fully operational.

Finally, as noted in chapter one, homeless service provision often suffers from a high turnover of staff due to burnout (e.g. Rife et al, 1991). Hutcheson and Hagen (1988) found that a quarter of all workers with the homeless studied considered themselves 'burnt out'. It is not only the homeless themselves that benefit from more effective services. If the effectiveness of their interventions is questionable, stress for workers will increase. A vicious circle can ensue; burnt out workers do not perform effectively and the inherent difficulties in recruiting and retaining staff further limit the effectiveness of programmes (Weinreb et al, 1995). Effective programmes depend to a great extent on how well supervised (Rog, 1997), motivated, trained and experienced are the staff who deliver the programme services (Weinreb and Rossi, 1995). In the future it would therefore be useful if studies reported this data fully ie the experience, profession, and grades of workers and determine ways of measuring the impact of their work on (say) workers' stress levels.

Burnout may therefore also have an impact on the type of research undertaken. A high turnover of staff (as well as 'project' fixed term contracts) and early project implementation, imply a reliance on less sophisticated evaluative designs. The emphasis should be on the funders of projects to get it right by insisting on integration of research and development: where there is a need to form evidence about what works best, then properly conducted research should be part of the project specification from the outset.

SUMMARY AND CONCLUSION OF REVIEW

This review addresses the effectiveness of generic health or social care interventions for individual homeless clients. Originally, the review was to consider only those studies which purported to evaluate health services for homeless people, in the hope that the more specific question of effective services for homeless families in temporary accommodation could be elucidated. The initial searches of the literature uncovered very few studies, so the inclusion criteria were widened to include social intervention studies. Of the 33 studies deemed relevant to this review, nine studies were able to meet the pre-defined inclusion criteria (outlined in Box 2.2). Although the final nine studies provide us with the best evidence so far available about the effectiveness of health and social interventions for homeless people, the interventions evaluated are not necessarily typical of services provided for homeless people in the UK. For example, eight of the nine studies were conducted in North America and either focused on mentally ill clients or individuals with substance abuse problems. Three characteristics of these methodologically sound studies are worth highlighting. The first is *integration of social support* within mainstream provision; second, *multi disciplinary teams* and inter agency collaboration and third, the use of a comprehensive and co-ordinated multi-disciplinary approach to support needy individuals, often using a *case manager to advocate* on behalf of the homeless and to provide links with existing services.

In the earlier stages of the review, many interesting studies which purported to evaluate various interventions for homeless people were uncovered, and some were obviously relevant to the needs of homeless *families*; but they lacked methodological rigour. The positive outcomes in many of these studies cannot therefore be reliably attributed to the interventions used because of design faults and potential bias; no evidence of effects. This is not however the same as conclusive evidence that a particular intervention is ineffective: evidence of no effect (NHS Centre for Reviews and Dissemination, 1996). With this in mind, it is important to consider the results of these studies in designing empirical research studies (Eagly and Wood, 1994).

The problem of homelessness is not going to go away; it is an enduring problem. The rate of provision of new housing for an expanding population and an even faster expansion of the number of single person households will ensure a homeless population for at least the next few decades. Providing more services for homeless people without evaluating the effectiveness of the interventions is not helpful. The review concludes that there is a profound lack of hard evidence as to which kinds of services for homeless families will result in better housing outcomes and improved health and quality of life. There is clearly a place for a large UK controlled study, and the preferred model emerging from the review, as worthy of formal evaluation, is that of a multi-disciplinary team providing integration to mainstream health and social services for homeless people in the UK.

3

A REVIEW OF THE LITERATURE REGARDING PROCESS AND OUTCOME MEASUREMENT

This chapter provides further discussion of methodological issues related to the evaluation of the effectiveness of interventions. In two separate sections process and outcome measurement relevant to the evaluation of interventions for homeless people are explored. The first section emphasises the importance of including process measures in studies of effectiveness and will discuss which studies measured processes, what methods were used and how these related to the outcomes measured. The second section of this chapter highlights the significance of outcome measurement and describes the outcomes measured in the studies from the systematic review. Consideration is then given to the second aim of the thesis; the empirical study. The focus of this section therefore narrows to concentrate on quality of life as a suitable outcome measure for studies of homeless individuals. A method for measuring quality of life is presented as an appropriate method of tackling relevant aspects of the experience of the homeless, allowing people to report on their quality of life in a way that has meaning for them.

PART ONE: PROCESS MEASURES

Background

Many health service researchers (for example Coulter, 1991; St Leger and Walsworth-Bell, 1999) highlight the work of Donabedian (1980) who proposed three aspects of health care which are amenable to evaluation: structure, process and outcome. "Structure" represents the resources, facilities and organisational setting that enable the service to be provided; "process" is how things are done within a service: for example, the set of activities that go on between practitioners and patients that are undertaken in a new intervention; and "outcome" is the effect a service has on its clients, for example, the change in a patient's health status which can be attributed to the health care they have received.

The main objective of health care is a good *outcome*; focusing exclusively on the process can simply encourage the perpetuation of unscientific and unnecessary interventions. However, an understanding of the process of care may be essential if the objectives of the intervention are to be understood and the links between structure and outcomes explained (Smith and Cantely 1985). *Process measures* involve definition of indicators and can encourage providers (of health and social to homeless people) to question their patterns of activity intelligently (Seal, 1993). These measures may also be important for the replication of services or interventions.

Process evaluations describe the context in which the intervention occurs and the processes involved in arriving at particular outcomes. The process component of studies is largely concerned with inputs, throughput, and outputs of the project (Heubner and Cross, 1991). In primary health care most measures of service provision focus on consultation rates and other readily quantifiable indicators; these are often collected in relation to measurement of need (Powell, 1988).

Outcomes alone are not enough

A weakness of traditional outcome research is that the intervention is not defined in detail, making it difficult to explain the processes that are responsible for particular outcomes. A number of commentators have argued that it is not informative merely to describe effects of an intervention without consideration of the components and mechanisms responsible for producing these effects (Rog and Heubner 1992; Greenfield and Nelson, 1992). Simply knowing whether a treatment produces an effect does not *necessarily* imply the successful design and implementation of effective programs in the transition from pilot project to a broader-scale application. For intervention study results to be generalisable, applicable and useful in developing programs, we need to understand how, when, for whom and under what conditions the intervention works (Chen and Rossi, 1980). In other words,

> "in the rush to embrace outcomes, examination of the process of care should not be neglected" (Davies and Crombie, 1995 p766).

There are other advantages to be gained from focusing on process. Mercier and Racine (1993) note that implementation and process studies can sometimes be more relevant and helpful than strict outcome studies, especially in the early stages of implementation or where RCT methods are not feasible. They stress the importance of documenting the intervention, the participants in the program and the research conditions and procedures. Measures of process are usually easy to interpret. The collection of process data such as service utilisation may highlight levels of need, shedding light upon the health problems of homeless people and their illness behaviour, that is, how much the patient perceives, reacts to and acts upon symptoms of ill health (Bowling, 1998). An emphasis on type of intervention rather than on outcome may provide information of more policy-relevance, especially where decisions have to be taken between the costs and benefits of different interventions (Oakley, 1999).

Processes alone are not enough

Milne (1993) notes in discussing process and outcome in the evaluation of mental health nursing that there is a "tendency for researchers to focus on one at the expense of the other". Studies claiming to measure effectiveness, by merely monitoring processes, are inappropriate if no prior evidence exists to show that a process leads to a better outcome. Process indicators do not, and were not designed to, measure the *effectiveness* of the treatments and processes of care within the health service (Coulter, 1991). Only measuring processes in evaluations of the effectiveness of treatments is most useful and appropriate when high quality care is taken to be *care that is consistent with the results of clinical trials.* Mant and Hicks (1995) assert that where evidence from RCTs shows that an intervention is effective, then it *is* relevant to monitor the process of care after dissemination of this evidence; this may reveal the extent to which clinical practice has changed to take account of research findings. The practicalities of always evaluating in terms of overall outcome have to be considered (St Leger and Walsworth-Bell, 1999). Evaluation in terms of the ultimate outcome of morbidity would be extremely costly. In these circumstances subsequent measurement of the 'process' element may be much easier and quicker as a proxy for outcome measurement. Initiatives such as the Cochrane Collaboration and the NHS Centre for Reviews and Dissemination, generating evidence based clinical guidelines, are intended to provide the best possible information on how to achieve good outcomes (Davies and Crombie, 1995). Comparison of current process with the best practice identified by the research evidence thus provides a sensitive, valid, economical assessment of the quality of care. Hence the importance of process measures in clinical audit.

Applying these arguments to the literature on homeless people, as with general health evaluation literature (Milne, 1993), there have been a number of studies which, to varying degrees, have focused on the process of care rather than health outcome (Crabbe 1997; Croft-White, 1998; Lindsey 1996; Hatton, 1997; Mercier and Racine, 1995; Shinn et al, 1990; Williams and Allen, 1989; Powell, 1988; May and Evans, 1994). May and Evans (1994) conducted a process evaluation of health education classes at 13 shelters and treatment programs for homeless women. They obtained client feedback for program development using a survey design. They assumed this would be easier than an outcome evaluation and the authors optimistically assumed that outcomes would be met if the process is successfully implemented (Dignan and Carr 1992 cited in May and Evans, 1994) (see Mant and Hicks, 1995 earlier.) Williams and Allen (1989) reported that their reliance on process measures was due to the difficulties inherent in longitudinal studies with a homeless population and the conflicting objectives of various stakeholders involved in the project. Similarly, Croft-White's (1998) 3-month evaluation of the rough sleepers initiative did not report any systematic process or outcome data collection. (These two British studies were excluded from the systematic review but are discussed again in the final discussion chapter of this thesis.)

Health service utilisation is a common measure of process and this is measured by a number of British studies (George et al, 1991; Williams and Allen, 1989; Victor et al, 1992; Lissauer et al 1993; North et al, 1997). These studies highlight the problems associated with this population and can facilitate the planning of services for homeless people. They do not however, test the effectiveness of interventions. The measurement of service utilisation by homeless people is often undertaken to highlight the inappropriate use of services, difficulties in accessing services and "overuse" particularly of services such as A&E departments. It may also be used as a proxy for need /morbidity and so may not even be a process measure per se. These studies may sometimes fall into the trap of suggesting because services are being delivered to and accessed by homeless people, services are effective.

The most detailed survey of service utilisation by homeless families was that of Victor et al (1989; 1992). Self report service utilisation (ie subjective recall data) was used in both studies. Victor et al (1989) reported high rates of hospital use among homeless people in B&B hotels in inner London. They estimated that the inpatient admission rate was 4.5 times greater than that for the resident population. For children the hospital admission rate was more than twice that for the resident population. The later study conducted in Parkside District Health Authority, London (Victor et al, 1992), showed a high rate of hospital and community health service utilisation. Service utilisation was measured by self report GP consultation, health visitor contacts, visits to A&E and visits to a NHS dentist in previous 14 days, outpatient visits in the previous 3 months and inpatient stays in the previous 12 months. Consultations with a GP (29% vs 16%), contacts with a health visitor (4% vs 1%) and visits to A&E departments (13% vs 3%) were significantly higher than that for the North West Thames region as a whole.

It is also worth mentioning a survey of 93 administrators of health care programs for the homeless in the US (Hunter et al, 1991). They identified key information needed to evaluate homeless programs. Many of their respondents recommended the collection of process elements of homeless health care programs indicating an interest in evaluation extending into the scope and nature of services delivered. There was also a trend by the participants of this study toward recommending more data collection on care delivered to families.

Both processes and outcomes should be measured

Going back to the work of Donabedian (1980) in order to fully evaluate an intervention it is clear that both process and outcome data need to be collected; outcomes are the results attained but process measures describe how these outcomes are achieved. The following review of the literature illustrates that this is not always practised, making the replication and the application of the findings to a different situation troublesome.

Process Data Collected in Homeless *Intervention* Studies

The studies reviewed in the previous chapter which addressed the effectiveness or efficacy of any type of generic health/ social care interventions for individual homeless clients provided adequate *descriptions* of the nature of implementation. Basic process data were reported in most studies. Tables 2.2 and 2.3 (in chapter 2) showed that all studies described the location of the intervention under study and only three studies failed to make clear what professional group (if any) provided the intervention (Caton, 1990; Leda and Rosenheck, 1992 ;Toro et al, 1997). Average or intended duration of client contact was reported in only just over half of the studies (18) and ranged from a few days (Redelmeier et al, 1995) to 2 years (Hurlburt et al, 1996; Morse et al, 1992; Shlay and Holupka, 1992). Although useful, this information was often not comprehensive enough to enable replication.

Overall, only just over a third of the studies (14) attempted to measure, the implementation process or the amount of services received by study participants, despite the fact that most were carried out in the USA, where there is greater emphasis on documentation (Murray and Baier, 1995). Half of the studies in the second stage of the systematic review contained process evaluations (Braucht et al, 1995; Dickey et al, 1996; Morse et al, 1997; Morse et al, 1992; and Lehman et al, 1997). These higher quality studies enhanced the collection of outcome data with a more process-oriented explanation of how the form, content and combination of service elements affected the outcomes of interest (Table 3.1). The second column illustrates the varying ways in which processes were measured. One of the benefits from measuring processes is that the relationship between service elements and outcomes can be explored. The degree to which the studies were able to do this is outlined in the third column of Table 3.1. Seven studies explored this relationship using statistical techniques such as multivariate regression analysis.

Table 3.1 **Interventions for homeless people studies: process measures used and relationships with outcomes**

For further details on these studies please see table 2.6 and 2.8 in chapter 2

Study	Implementation / processes measured	Details of relationships between measured process and outcomes
Braucht et al (1995)	Data included: length of time in each treatment; detoxification; residence; contacts with the addictions counsellor; substance abuse treatment and days housing. Services received from agencies other than Arapahoe House are based on self-report interviews conducted at time two (4 months).	Contrary to expectation, there were no differences between groups on the amount of services received from both Arapahoe House and other agencies. As a result, case management had little, if any, demonstrable effect on the outcome measures.
Bybee et al (1994)	Measured intensity of service contact (hours of contact per month) and duration (in months) of involvement with services.	The duration of services provided by the project team and the mainstream CMH agency, had a positive effect on the odds of being permanently housed at 12 month follow up.
Dickey et al (1996)	Service use came from three sources: 1) case managers reported the number of case management hours they spent weekly on a case, either face to face with the client or working on his or her behalf; they also reported the clients' use of detoxification and substance abuse treatment services. 2) Records at four CMHCs and their affiliated clinics yielded information about mental health treatment. 3) Finally the Department of Mental Health and Medicaid in Massachusetts provided data on inpatient admissions.	Treatment service use was found to be inversely related to housing stability, although the statistical analysis was not reported.
Drake et al (1997)	The Treatment Services Interview was used to record clients' self-reported contacts with 22 categories of services received during the 60 day period before each assessment.	No analysis was reported linking the amount of service received with outcomes achieved although differences in amount of services received between groups were minimal.
Lehman et al (1997)	Staff from the ACT team and from the various community programmes servicing the comparison patients completed the Community Program Philosophy Scale, a standardised measure of staff practices (Hargreaves, 1994 cited in Lehman et al, 1997).	No analysis was reported linking the amount of service received with outcomes achieved, although validation that the two conditions differed on expected service variables was provided.
Mercier and Racine (1993)	Each client's "exposure" to the programme was based on the record of all contacts between the case managers and each of the participants.	No analysis was reported linking the amount of service received with outcomes achieved.

/*Table 3.1* *continued*

Study	**Implementation / processes measured**	**Details of relationships between measured process and outcomes**
Marshall et al (1995)	Case managers kept a record of the time spent working with, or for, each subject.	No analysis was reported linking the amount of service received with outcomes achieved.
Morse et al (1992)	Clients were asked the number of days per month they had contact with the treatment programme. The resource utilisation of other agencies was measured by asking clients each month if they had contact with any of the 23 services listed such as transitional or long term housing, job training and legal services.	Multivariate analysis for resource utilisation showed significant differences in contact data between the treatment conditions. Clients in continuous treatment had more contacts in the areas of life skills training, counselling as needed, other psychiatric treatment and supportive help.
Morse et al (1997)	The mean number of programme contacts with the treatment programme for each time period was calculated. It is not specified how this was collected. Clients were asked if they had received help in the areas of housing, employment and job training, financial assistance, legal services, mental health services, substance abuse treatment, other health services, and supportive services. Scores were 0 (no assistance) and 1 (assistance). Clients also indicated which specified agency, including the assigned programme had assisted them.	Multivariate analysis of variance for resource utilisation showed significant differences between the treatment conditions. Clients in the continuous treatment had more contacts in the areas of financial assistance, health and supportive services
Murray and Baier (1995)	A record review tool, developed by the investigators was used to extract information from client's records for 25 variables, including health problems, activities engaged in while in the programme, length of stay, type of discharge, length of time for which housing placement were maintained following discharge.	Achievement of client goals was positively related to length of stay of 3 months or more, to five or more previous psychiatric hospitalisations. Those residents who achieved their goals and were discharged according to the treatment plan were more likely to have participated in two or more activities. No multivariate techniques were used.
Redelmeier et al (1995)	The number of visits to the emergency department and type of medical or surgical treatments were reported. It was also noted whether patients received food from volunteers and what subjects were discussed, this was usually living situation, family, and experiences at other hospitals.	No analysis was reported linking the amount of service received with outcomes achieved.

/Table 3.1 *continued*

Study	Implementation / processes measured	Details of relationships between measured process and outcomes
Rosenheck et al, (1995)	The programme or process elements measured were: being contacted through community outreach; total number of contacts with the programme clinicians; number of referrals for other services; duration of programme involvement; number of days of residential treatment; and increased public support payments. Data were obtained from multiple sources: structured clinical summaries completed every three months to document the delivery of programme services. Residential treatment services were documented on structured discharge summaries completed at the end of every episode of residential treatment. Data on the utilisation and cost of health and mental health services were obtained from national computerised databases.	Multivariate techniques were used to examine the relationships between ten measures of outcome and six treatment elements: programme entry via community outreach, number of contacts with programme clinicians, number of referrals for other services, duration of programme involvement, number of days of residential treatment, and increased public support payments. Each of the six treatment elements was significantly related to improvement on at least one of the ten outcome measures.
Rog et al (1997)	The types of process data collected included: 1) Key informant interviews and documents; 2) A case manager survey obtained their views on the needs of families, and their philosophy with respect to case management (79% response rate). 3) A case manager time sample had three components: yesterday's activities, the past week's activities and major activities occurring in the prior 30 days. 4) Case managers completed a monthly case management record for each family as part of the larger uniform Management Information System (MIS). For each contact the case manager recorded the date of the contact, who was involved, who initiated it, the location or type of contact, the length of contact, and the types of activities conducted during the contact, such as arranging for services or problem solving with the family.	No analysis was reported linking the amount of service received with outcomes achieved. The analyses of this data has not yet been published.

/Table 3.1 continued

Study	Implementation / processes measured	Details of relationships between measured process and outcomes
Shlay and Holupka (1992)	Participation (voluntary) in each of the main programme services was measured: education, employment and training, child care, short term sessions and the extent to which all family members were involved in the programme.	Participation in the Family Development Centre had a small but statistically significant effect on employment indicating that higher rates of participation were accompanied by a reduction in employment. This finding indicated that the longer term strategy of improving education and skills of these families were being achieved. Higher levels of participation in education programmes and overall level of comprehensiveness in service delivery were accompanied by an increase in educational aspirations at one year follow up. It was suggested that the joining of education with child care services may encourage people to think about acquiring more education in the future. Receiving more comprehensive services were associated with an increase in self esteem and sense of control. Participation did not however affect changes in levels of perceived stress and anxiety.

For further details on these studies please see table 2.6 and 2.8 in chapter 2

Table 3.1 has shown what process measures were collected and details any relationship with outcomes that may have been measured. The following discussion will attempt to address the how the data was collected, how useful the results are, any difficulties in measurement of processes, and implications for future research.

Methods of data collection

The most common service elements which were measured in these studies were duration of contact and the intensity of the intervention. A few studies (Braucht et al, 1995; Drake et al, 1997; Morse et al, 1992; Morse et al, 1997) were able to measure some aspects of service utilisation of other agencies used by homeless people and this may be an indicator of stronger integration with other services. It appears that studies which were able to collect comprehensive utilisation data, were also more likely to collect cost data to enable an estimation of the cost-effectiveness of the interventions (Rosenheck et al 1995; Morse et al, 1997; Dickey et al, 1997).

Process data was usually collected as part of the routine data collection for service provision. There were a number studies which comprehensively utilised this type of service use data (for example, Rog et al, 1997; Rosenheck et al, 1995 and Dickey et al, 1996). Customised monitoring systems were usually designed to assess resource use and in other cases homeless clients were consulted. Only two studies used standardised instruments to collect process data (Lehman et al, 1997 and Drake et al, 1997). In Lehman's study, staff from the ACT team and from the various community programmes servicing the comparison patients completed the Community Program Philosophy Scale a standardised measure of staff practices (Hargreaves, 1994 cited in Lehman et al, 1997). The authors suggested that they would have used the more recent standardised process measures had they been available at the time of undertaking the study (McGrew et al, 1994; Teague et al, 1995 both cited in Lehman et al, 1997). Drake et al (1997) used the Treatment Services Interview to record homeless mentally ill with substance /alcohol problems self-reports regarding 22 categories of services received during the 60 day period before each assessment.

If systems are not already in place to collect routine process data on homeless people there can be a heavy reliance on self report patient data. Three studies relied on patient reports (Braucht et al, 1995; Drake et al, 1995 and Morse et al, 1992 & 1997).

Collecting self report data does enable researchers to obtain information on a wider range of services and may be feasible if follow up interviews are already part of the research design. This type of data collection can however, be labour intensive for researchers. In Morse et al's (1992) study clients were asked the number of days per month they had contact with the treatment programme as well as whether or not they received help in a list of 23 service areas such as transitional or long term housing, job training and legal services. This was a good method of obtaining a wide range of information but the subsequent analysis may not have done justice to the amount of data collected. In their 1997 study, similar data were collected for different time periods. Clients were asked if they had received help in the areas of housing, employment and job training, financial assistance, legal services, mental health services, substance abuse treatment, other health services, and supportive services. The level of sophistication was minimal when reporting these variables; scores were 0 (no assistance) and 1 (assistance). The mean number of programme contacts with the treatment programme for each time period was calculated.

Caslyn et al (1993; 1997) assessed the reliability and validity of self-report data of the homeless mentally ill individuals by comparing it to that reported by case managers. Most clients were found to report lower rates of service utilisation than case managers. Higher congruence was found in supportive services and areas involving more basic social or health services. Lower rates of agreement occurred in mental health and substance abuse treatment services. Furthermore clients tended to report higher levels of service use in areas that represented the more highly valued needs of homeless people. The authors conclude that not only do homeless people perceive certain needs as more important than others but are also more likely to provide more accurate self reports of actual service utilisation along a similar hierarchy of preferred needs. Other research which focuses on the reliability of self report data from homeless people has focused on 'skid row alcoholics' (Annis, 1979; Bahr and Houts, 1971) and may not be relevant for other homeless groups.

A summary of how useful the results were

One problem with the measurement of processes is in relation to internal validity ie in linking the activity to the outcome. Measuring processes and outcomes enables the relationship between service elements and outcomes to be explored. The studies which explored this using multivariate regression analysis found cause and effects difficult to establish. Given that the classical experimental design has the advantage of eliminating alternative hypotheses in order to attribute the observed effects of the intervention being evaluated, it may be more important for uncontrolled studies to focus on process elements as well as outcomes. But, even with an experimental design, if there are many aspects of process that have been linked to outcome, there may still be some difficulty in interpreting results.

The impetus for the collection of process data was not always to assess the relationship between treatment and outcome. If an experimental design was used, often resource use was collected to see if the amount of services received differed between groups (Braucht et al, 1995; Drake et al, 1997; Lehman et al, 1997; Morse et al, 1992; Morse et al, 1997; Dickey et al, 1996). The analysis of process data in Lehman et al's (1997) study provided evidence that the two conditions differed on expected service variables. Whereas Drake et al (1997) showed the standard treatment clients were on the whole accessing similar amounts of total services as the integrated treatment group. Similarly Dickey et al (1996) found that clients assigned to the two housing types did not differ significantly in their use of any particular service. Braucht et al (1995) also found that contrary to expectation, there were no differences between the case managed group and the usual care group, on the amount of services received from both the detox centre and other agencies.

The analysis of which agencies assisted clients, including that which provided the experimental intervention, was revealing for Morse et al (1997). The data indicated that the ACT approaches were far more effective than broker case management in helping clients obtain service and resources needed by homeless people with serious mental illness. Clients in the broker agency tended to receive help from outside the treatment programme.

The collection of process data were also useful for exploring whether or not services were implemented as originally intended. For example, a key insight gained from Rog et al (1997) analysis was that the intended level of intensity could not be achieved. It was found that case managers spent on average about three quarters of their day engaged in such activities as paperwork, phone calls, meetings, office work, conferring with colleagues, travel and so on. Only one quarter was spent directly with families. So the intervention which was originally intended as an intensive case management approach (with frequent client contact) actually only produced an average of 15 hours of direct client services and 15 client contacts during the first year of service. This analysis was descriptive rather than predictive of outcomes and used for the development of services rather than quantitative evaluation. Similarly, Marshall et al, (1995) found that case-managers gave a mean of 21.6 hours to 36 subjects over the 14 month period.

Shlay and Holupka (1992) found that there was a linear association between the extent to which the services received by homeless families were comprehensive and increases in people's self esteem and sense of control in their lives. They found no relationship between amount of services and levels of perceived stress and anxiety. The studies which did relate outcomes to implementation did not always find a linear relationship (or a "dose response relationship") between the amount of services received and the outcomes achieved: more treatment does not necessarily produce better results (Mercier et al, 1992). The interventions in many of the studies often constituted crisis management where a client whose situation worsens demands more of the case manager's attention and consequently receives more services. On the other hand clients whose situations are less dramatic require fewer services and can leave the programme more easily and achieve better outcomes. For example, Dickey et al (1996) found that treatment services were inversely related to housing stability (although the statistical analysis was not reported).

Difficulties encountered

Most of the studies highlighted difficulties in collecting process data. Comparison across studies is not straightforward for a number of reasons. First different variables and time periods were measured in most studies. Few validated data collection instruments were used so the quality of data may not be equivalent. Often the data may only have been collected for service use and was not intended for research use. All routinely collected data about the most common measure of process, service usage, may be subject to problems of inaccuracy and can often reflect policies of individual clinicians and service provision and provide no information about the impact of the treatment on the patient's life. Collecting comprehensive data across services was shown to be difficult but should be regarded as an integral part of assessing the effectiveness of interventions.

Difficulties can also arise at the analysis stage. For example, Dickey et al (1996) found that several factors made the data difficult to summarise concisely. The first difficulty was with the large number of services available, with each client using a different mix of service. Second, the use of services was measured in different types of units which limited the extent to which data could be aggregated. Rog et al (1997) highlighted the problem of under reporting the utilisation of services, variations in standards and practices of record keeping between sites and possibly between individual workers.

Lessons to be learned from these studies

The collection of process and outcome data was achievable for most homeless groups, especially if good information systems were already in place. These may also benefit the coordination of services to the homeless which may in turn aid the implementation of effective care as well as providing ongoing monitoring data. However the difficulties in routine recording of client information on computerized systems is currently being debated in a number of cities in the USA (e.g. Seattle and New York). These include difficulties of collecting and retaining information on people without consent, issues of confidentiality and client tracking across services. There is also some concern that many homeless and formerly homeless individuals will fear the possibility that personal information would be shared in inappropriate ways. Whether their privacy would be compromised or not, it is argued that women who have fled abusive relationships and people with mental illness may be uneasy in giving out the type of information that would be required by the systems. If these problems can be overcome, it may be more economical to track people through systems of care than following them up in person.

Indeed there is some question over the reliability of self report utilisation data.

It has also been shown that the comprehensive data collection and combined analysis of outcomes and process data provides an important method of improving the value of uncontrolled outcome studies, such as Rosenheck et al (1995). Although bias remains as the main problem in attributing outcome ie asserting a cause and effect relationship.

The present study, the focus of this thesis, was part of a national program to improve access to primary health care services for homeless people. Activity (process) data was requested in the form of 6 monthly reports to the DoH. At best, many of the 34 projects were only capable of collecting activity data such as number of consultations, presenting problems, treatment and referrals. Service providers encountered many difficulties collecting this data; there were no consistent or standardised instruments used and data collection could be described as 'ad hoc' (Williams, 1995). GP consultation rates are often used as they are the most common point of self-referral to the health service. Although in this case no evaluation criteria were defined and demands on individual projects were not great, it would be enormously helpful if in the future researchers could compile a standardised minimum data set so studies could collect comparable information. This idea is currently being piloted in adult community mental health service in the UK (Mental Health Minimum Data Set Project) (Glover,1995; Glover, 1996).

PART TWO: OUTCOME MEASURES

Background

The importance of outcome data

In the context of health and illness, Wilkin et al (1992) defined outcome measurement as the 'achievement of or failure to achieve desired goals'. Similarly McCallum (1993) states,

> "An outcome is a natural or artificially designated point in the care of an individual or population suitable for assessing the effect of an intervention, or lack of intervention." (McCallum,1993).

Formal research on interventions in the field of primary health care is relatively new. Because of its all inclusive scope, the achievement of defined endpoints have not traditionally been emphasised in 'cradle to grave' medical or nursing care. Hence Wilkin and colleagues' assertion that measures of need and outcome have been less extensively used in primary health care than in other specialities (Wilkin et al,1992; p283). In the field of public health, consideration of alternative forms of treatment for individual patients of health-care programmes for population subgroups has been dominated by the question of survival. Mortality statistics formed the building blocks of epidemiological studies and early clinical trials used improved life expectancy, regardless of its quality or the cost of securing it, as a prime outcome measure.

Mortality statistics are useful for measuring the health of large populations over long time periods but are of little value to researchers investigating relatively small populations over short periods, during which major changes in death rates are unlikely to occur. In primary care, even hospital admissions are a relatively insensitive measure of the burden of work for GP's (Fowler, 1995), consequently it is preferable to employ health indices which are designed to show changes in *perceived* health and well-being.

It is well known that with chronic disease, health care does not necessarily save lives, but can often prolong the length or enhance the quality of the remaining survival time. Furthermore, it is widely acknowledged that the personal burden of illness cannot be fully described by measures of disease status; psycho-social factors such as pain, apprehension, difficulty in fulfilling personal and family responsibilities and financial burden must also be encompassed (Muldoon et al, 1998). Until recently, medical science has been poorly equipped to document quality of life. Clinicians have often seen themselves as the sole arbiter of what constitutes successful treatment, relying on observation and intuition as well as patient reports. Early clinical research striving for academic respectability concentrated on such "objective" measures, and subjective data had until recently been regarded as suspect and unworthy of publication in mainstream medical journals (Anthony and Parsons, 1994).

Recently, more attention has been paid to the subjective experience of the patient in assessing the effectiveness of clinical treatments (Coulter, 1991). Consumer choice and patient satisfaction have also emerged as orbiters of health service provision. Responsibility for decision-making seems to be shifting both down from the doctor to the patient and up from the doctor to health-care managers. Coulter proposes six categories of disease and treatment outcomes: death, disease, physical well-being, psychological well-being, social well-being (including social integration, social contact and intimacy) and quality of life (including health perceptions, satisfaction and relative disadvantage). Quality of life measures are of considerable interest to a new breed of health-care managers who are contributing to decisions about resource allocation (Read, 1993).

Decision making calls for the assessment of outcomes, since for state health and social service provision there are constant political pressures to reduce public spending. On which grounds are these choices being made? There is little evidence that choice of care is based on information on health care and compassion for the patient, a rigorous assessment in the widest possible terms of need for, the success of and the cost-effectiveness of various types of provision (Anthony and Parsons, 1994). Brown (1998) notes that policy making is political and pragmatic, but rarely evidence-based and more often evidence-informed. According to Maynard (1982, cited in Anthony and Parsons, 1994):

> "Clinical freedom and professional power have led to a failure to create mechanisms which ensure that practitioners evaluate clinical outcomes and their cost implications. Such behaviour is not only inefficient but is unethical: resources used inefficiently are not available to treat those who are in the queue and who could potentially gain more, in terms of health status, if they were treated." (Maynard, 1982 cited in Anthony and Parsons, 1994 pp54)

The current vogue for rational, or 'evidence-based' health care (Sackett, 1997) has added the impetus for scientific evaluation of alternative treatments for a wide range of conditions affecting health. Outcome measurement, including use of generic measures not tied to diagnostic categories, has become a sub-speciality within health services research.

Outcomes used in intervention studies for homeless people

The review of the literature in chapter one showed that the problems of homelessness are multi-faceted; any attempt to improve the health of the homeless must reflect this. A quote from Patrick (1986) is useful when considering what outcomes of care would be desirable:

> " the linkage of theories and concepts from medicine with those from the social sciences and humanities is nowhere more important than in conceptualizing the outcomes of [disease and] treatment". (Patrick 1986 p224)

The systematic review focused on studies which used appropriate methodology to measure the effectiveness of interventions for homeless people. Outcomes were classified into 18 categories and Table 2.4 is re-inserted below. The most commonly measured outcomes were further periods of homelessness (77%), mental health and psychiatric problems (65%; including stressful events, depression, self esteem, hope, alienation and psychiatric status), employment status (50%) and measures of social health (47%; including social contact, living skills, social relations, interpersonal support and client functioning).

Repeated Table 2.4: Outcomes measured in the included studies (n=33)

	n	(%)
Homeless	26	(78.8)
Mental health	22	(66.7)
Employment or education	17	(51.5)
Social health	16	(48.5)
Income	13	(39.4)
Use of alcohol	13	(39.4)
Use of drugs	13	(39.4)
Physical health	10	(30.3)
Health care utilisation	7	(21.2)
Quality of life/ well being	6	(18.2)
Hospitalisation or admissions	6	(18.2)
Criminal justice legal problems	5	(15.2)
Quality of living arrangement or residential status	5	(15.2)
Social care utilisation	4	(12.1)
Life satisfaction	3	(9.1)
Engagement	3	(9.1)
Client satisfaction	2	(6.1)
Health status	2	(6.1)

Many of the studies which measured objective indicators such as homelessness and employment status reported these as quality of life outcomes; these have not been categorised as quality of life outcomes in the table above. Quality of life was formally measured in only 6 of the 33 studies. Bowling (1998) warns that the fashion for describing all non-clinical outcomes under the label of quality of life may be counter-productive.

Quality of Life Measures in Health and Social Services Research

This section provides a synopsis of the concept of quality of life and its appropriateness for a homeless population. Recent studies focusing on the measurement of quality of life will then be discussed in some detail, concluding with some of the difficulties and benefits of quality of life as a measure in the evaluation of health services/ interventions assessment.

The concept of quality of life

The nebulous concept of quality of life can be measured using 'objective' or 'subjective' indices. Objective social and economic indicators include such things as income, marital status, work status, quality of housing, physical health, frequency of social relations. However, psychological measures or subjective assessments are also needed in order to gain an understanding of how individuals assess the intrinsic value and quality of their lifestyles (Zautra, 1983). Subjective indicators which are based on self-ratings of quality of life are increasingly popular due to the acknowledgment of the importance of how individuals feel, rather than what more objective statistics imply they ought to feel (Bowling, 1998).

In terms of objective measures of quality of life, it is clear that the homeless have a very poor socio-economic standing. The homeless have no permanent residence in a community and lack control over everyday living environment (Hayden and Bose, 1991). The homeless also have few material possessions and are generally unemployed or economically inactive (Niner, 1989; Whynes, 1990; OPCS 1992). They also tend towards poor physical health (Victor, 1992; Drennan and Stearn, 1986; Stern, 1986; Lovell, 1986; Parsons, 1991; Lissauer et al 1993), commonly have diminished social support systems, failed relationships and may be isolated from their families (Morton, 1990; Lindsey, 1996; Bassuk et al, 1985; Pickin and Ramsel, 1990; Conway, 1988).

Assessing the value of health care interventions for homeless people: the relevance of measuring health related quality of life

> "Living in temporary accommodation seriously affects the quality of people's lives and is no substitute for a permanent home." (Shelter, 1998)

Enhancing health related quality of life may be as important as other goals of health and health care, such as, preventing disease, alleviating symptoms or pain and prolonging life, especially when adopting a broad model of health (see chapter one). Bowling (1995) notes,

> "There is increasing agreement among many clinicians and social scientists that quality of life should be assessed when evaluating the outcome of [medical] interventions... Quality of life indicators should help to answer the question of whether the treatment leads to a life worth living, by providing a more subjective, patient led baseline against which the effects of the intervention can be evaluated" (Bowling, 1995 p1448).

Read (1993) argues that one of the most important functions of quality of life measures is in the area of quantifying the value of effectiveness of therapy. Others have argued that socio-economic inequalities in health are larger for *perceived* health problems than for more objective health indicators (Stronks et al, 1997). While it may be hypothesised that the homeless perceive the quality of their lives to be poor, there has in fact been little study involving subjective assessments of quality of life by the homeless, particularly those in temporary accommodation in Britain. Where available, such data adds an important perspective to research with the homeless. Hunt (1988) emphasises the following reasons for concentrating on subjective data in general:-

1. Perceived health has been found to be more closely related to the use of health services than medical condition.
2. When objective measures of health have been used for comparison, the risk of mortality has been found to be 2-3 times greater for people who report their health as poor, than for those who rate their health to be excellent.
3. Doctors and patients often differ on whether treatment has been successful or not.

Quality of life measurement can encompass all circumstances of life, for example housing, leisure activities, work, income etc (Campbell et al, 1976). A large body of social indicators research has demonstrated that in Western societies the most enduring determinants of health status and quality of life are social. In Britain, employment and income were identified as critical determinants of health in the Black Report (Townsend and Davidson 1982). Nearly two decades later, social class differentials in health status are widening (Acheson, 1998).

Housing provision is one of those areas of inequality undermining health and, surely, quality of life in Britain. Inadequate housing will undoubtedly represent a significant source of stress, over and above the pressures of everyday life (Smith et al, 1993). Housing therefore, is a quality of life issue, as is health; intervention in either would be expected to affect quality of life. The removal of a person's home or health will diminish quality of life for the majority of people (Jenkins 1992). Several researchers have addressed the link between objective life circumstances and life fulfilment/satisfaction/quality of life in homeless persons. However, Marshall et al (1996) note that the available evidence suggests that objective circumstances may only be tenuously linked with life satisfaction.

Homeless people are unable to meet the basic human need for shelter. Maslow describes a hierarchy of needs, with humans having to meet four basic sets of needs before self-fulfilment at a higher plane can be satisfied (Maslow, 1962). These needs are physiological needs such as food and drive, safety, belonging and love, and esteem. Failure to satisfy the need for security impedes growth towards 'self-actualisation' and ones personal potential remains unfulfilled. Maslow's theory tends to suggest that before emotional needs can be successfully addressed in homeless people, basic physiological needs and safety issues must first be met. Bentley (1994) notes that homeless life is characterised by what it lacks. The focus moves away from the future, and becomes fixed upon day-to-day survival. Thus an intervention which is clearly focused on tackling the health and social needs of homeless people through advocacy and empowerment, involving multiple agencies within a mainstream setting, is likely to have an impact on quality of life and health status.

Use & choice of quality of life measures

Whilst a number of quality of life instruments have been developed in the UK (eg the Nottingham Health Profile, the Short Form-36), many problems still exist with the concept of quality of life (Bowling 1998). Muldoon et al (1998) note that over a thousand new articles each year are indexed under quality of life despite scepticism and confusion about how quality of life should be conceptualised and measured and about its usefulness in health service research.

A recent study has examined the frequency and quality of reporting on quality of life in randomised controlled trials in all disciplines from 1980 to 1997 (Saunders et al, 1998). Saunders and colleagues assessed in detail a random sample (20%) of all the studies identified. They discovered that, although increasing over time, less than 5% of studies reported on quality of life. They also found that a plethora of instruments was used in different studies and the reporting of methods and results was often inadequate. They conclude that an initiative similar to CONSORT (Begg et al, 1996), that involves trialists, specialists in the measurement of quality of life, and journal editors, is needed to develop standards of assessing and reporting quality of life in clinical trials. Jenkinson (1995) also points out that the current but uncritical interest in health related quality of life measurement may lead to inappropriate decision making. For example, the use of inappropriate questionnaires will give inaccurate estimates of the impact of interventions. He feels that measurement instruments must be carefully and sometimes specifically chosen for each investigation. Methodological and practical considerations must be applied according to the purpose of each assessment.

Quality of life may be assessed globally with respect to "life in general", or with respect to specific life domains. A number of researchers have found that a relatively modest number of separate concerns can accurately predict perception of current overall well-being. Campbell (1981) describes twelve areas of life which concern most people, and which relate well to satisfaction with life in general. These include the domains of marriage, family life, friendships, standard of living, work, neighbourhood, housing, education, health and 'the self'. According to Campbell, the domains which are most highly related to general satisfaction are in descending order of importance: 'the self', standard of living, family life, marriage, friends and work. Similar scales for measuring generic quality of life have different domains and this can affect research outcomes. It is important to retain the separate domains for analysis; Bowling (1995) emphasises the multi-dimensionality of quality of life and supports the view that analyses should be based on unaggregated measures; she distrusts measures which involve summation of data for subscales.

Patrick and Erickson (1993) tried to make the term quality of life more meaningful to the health field by considering the contribution of different aspects of health to overall well-being and quality of life. They described health-related quality of life as

> "the value assigned to duration of life as modified by the impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy" (Patrick and Erickson, 1993 p20).

Of particular relevance to a *homeless* client group is the aspect of opportunity or potential, for an optimal state of health. Patrick and Erickson (1993) note that quality of life therefore involves capacity or potential, viewed negatively in relation to social or cultural disadvantage, or positively as resilience. Disadvantage may include aspects of physical and social access to the environment, to education, to employment and to housing. Individual resilience is relevant to a capacity to health and psychological reserve. The broad model of health (adopted in this thesis), is often measured by the ability to cope with or withstand stress or to maintain emotional equilibrium, recognising that people adjust differently to life situations altered by disease or interventions.

Quality of Life Measures Based on the Discrepancy Between Actual and Desired Life Circumstances

The subjectivist philosophy maintains that if quality of life is to have meaning and relevance, it must be defined in individual terms. Calman defines quality of life as

> "the extent to which a person's hopes and ambitions are matched and fulfilled by experience" (Calman, 1984; p125).

This implies that improvement in quality of life could be measured by the narrowing of the gap between a person's hopes and expectations and their actual experience. This method is also consistent with the evidence that objective social factors alone (such as housing, work and income) are poorer predictors of well-being than measures which incorporate a perceptual dimension (Krupinski, 1980).

The problems inherent in measuring quality of life need to be recognised and dealt with either through instrument design or through appropriate interpretation of the data. Allison et al (1997) explores the notion of a compromise approach in which subjects can indicate the relative importance of domains or items, while not actually choosing the questions themselves. A number of other researchers have recognised in their measures of quality of life that different people attach different levels of importance to particular life concerns (Krupinski, 1980; Baker et al, 1994; O'Boyle et al, 1992; Ruta and Garratt, 1994; Raphael et al, 1997). The measures produced by these researchers allow people to report on their quality of life in a way that has individual meaning for them, using the method of measuring life satisfaction by measuring the *discrepancy between actual and desired life circumstances* (Bubolz et al,1980; Flanagan, 1982). For the population studied within this thesis homelessness is generally not a choice but enforced; therefore this discrepancy or "discrepancy measurement" may be particularly relevant. The four measures are described below.

In Krupinski's study (1980), 1000 households (3000 subjects) in Melbourne, Australia were asked about different aspects of life. The areas covered were "life in general", work, school and housing, each area consisting of a series of items which respondents were asked to check in terms of the degree of importance to them. Next, the same questions were presented in a different order and respondents were requested to check how they fared in their actual life situation. Krupinski concluded from his analysis that, among the individuals that he studied,

> "the perceived fulfilment of their desires had the highest association with their health and well-being"(Krupinski, 1980 p209).

From additional data, Krupinski found that the prevalence of psychiatric disorders was less closely related to "objective" measures than to the extent to which people live according to their wishes.

The *Life Fulfilment Scale* (LFS)(Baker et al, 1994) was developed from Krupinski's (1980). Baker et al, (1994) improved the sensitivity of the scale by asking respondents to *rate* their satisfaction with their actual circumstances using a four-point Likert scale. The LFS was validated on a population of people who had epilepsy. Epilepsy has been shown to be associated with higher than average rates of psychiatric morbidity, low levels of self esteem (Collings, 1990 in Jacoby et al, 1993) and unemployment. Available evidence therefore suggests that like homelessness, epilepsy may have a considerable impact on the quality of an individual's life in a number of different spheres; a multidimensional instrument is therefore appropriate.

The Quality of Life Profile (Rapheal et al, 1997) has been developed by the Centre of Health Promotion, University of Toronto more recently and was not available for consideration at the time of designing the present study. It was developed on the basis of an analysis of the literature on quality of life and qualitative data collected in the context of focus groups and in-depth interviews with persons with and without developmental disabilities. In terms of design and scoring this measure is very similar to the LFS, although much longer at 54 items and nine domains (physical being, psychological being, spiritual being, physical belonging, social belonging, community belonging, practical becoming, leisure becoming and growth becoming). The importance and satisfaction for each item is rated on a 5 point Likert Scale.

The Schedule for the Evaluation of Individual Quality of Life (SEIQOL) (O'Boyle et al, 1992) asks patients to nominate the 5 most important areas of life. Respondents are then presented with 30 hypothetical randomly generated profiles of their nominated areas. Respondents rate each area on a visual analogue scale. Respondents are presented with 30 hypothetical randomly generated profiles of their nominated areas - for each one they rate their overall quality of life score. Multiple regression analysis is used to calculate weighted importance.

The Patient Generated Index of Quality of Life (PGI) (Ruta et al, 1994) asks for the most important areas of life affected by the medical condition. Respondents rate how badly affected they are in each of their chosen areas - zero is the worst, 100 is best. Respondents are "given" 60 "points" to spend across one or more areas to denote the relative importance they attach to potential improvements in those areas. By multiplying the six ratings and the proportion of points, an index (0-100) is generated. The PGI was designed for routine clinical practice as a self-completed questionnaire.

Both the SEIQOL and PGI are difficult to administer, extremely time consuming and difficult to measure change over time as specified categories may change during the period rated. Furthermore, the PGI is not designed to be used on healthy people; it asks respondents for the most important areas of life affected by the medical condition. It would therefore not be applicable for a heterogeneous population where floor effects (low scores) would be likely rendering the scale insensitive.

The SEIQOL asks patients to nominate the 5 most important areas of life while the PGI asks for the most important areas of life affected by the medical condition, and two completely different techniques are used in research settings to elicit the relative weights for the chosen areas. These measures all allow respondents to assess the extent to which reality departs from their own expectations, and to state the relative importance(s) of improvement in their chosen areas of life.

Studies Measuring the Subjective Quality of Life Or Well Being of Homeless People

Many of the intervention studies reviewed in the previous chapter sought to influence quality of life but few investigated it systematically. Further searches of the literature located studies which measured the perceived quality of life of homeless people, though not necessarily in the context of service evaluation. Many articles which were keyworded with "quality of life" did not in fact use quality of life instruments but used "objective" measures of lifestyle (current living arrangement, current employment status, frequency of contacts with family and income, etc). These studies will not be reviewed here. In all, six studies from the systematic review which formally measured outcomes in terms of quality of life, and a further six *descriptive* studies, are explored below. The quality of life measures used in these studies are described in table 3.2.

Table 3.2 Characteristics of quality of life measures used in previous studies of homeless people

Quality of life measure	Brief description	Studies which have administered the measures to homeless subjects	Design of relevant studies
Lehman Quality of Life Interview (QOLI) (Lehman, 1988)	This is administered in a structured interview where respondents are asked to rate their satisfaction with several domains of life (seven objective and seven subjective) including living situation, finances, daily activities, family relations, social relations, and safety as well as their general life satisfaction (Delighted-terrible faces scale - see below).	Rife,JC (1991)* Drake et al (1997)* Lehman et al (1997)* Marshall et al (1995)* Marshall et al (1996)	Follow up Quasi-expt RCT RCT Cross-sectnl
Life Domains Scale (LDS; Baker and Intagliata, 1982)	Provides an assessment of satisfaction with quality of life in 14/15 domains. Respondents are asked to rate how they feel about "the place you're staying at overnight", "the clothing you wear", "your friends", "how you spend your day", "the food you eat", "your health", "the people you live with and so forth. The rating scale ranges from 1=very unhappy or very dissatisfied to 5=very happy or very satisfied). Internal reliability has been found to be acceptable ® <.70). This measure has been used with psychiatric and general populations. Administration usually takes the form of a self report questionnaire completed in the presence of an interviewer	Cauce et al (1994)* Calsyn and Morse (1990)	Quasi-expt Cross- sectnl
Life Satisfaction Scale (terrible-delighted faces scale) (Andrews and Withey, 1976) also known as Perceived Quality of Life (PQOL) scale	Assessments are made of global quality of life and quality of life in various life domains. Respondents are shown 7 faces expressing various feelings (delighted, pleased, mostly satisfied, mixed, mostly dissatisfied, unhappy and terrible). This is an affective evaluation which involves a cognitive evaluation and some degree of positive /negative feeling (affect). The authors have published the items and suggest that investigators select relevant items for their own questionnaire eg Solarz chose 25 items and added a further 2 new items in five domains: leisure and independence, work and finance, safety, family and housing and self with internal reliability ranging from r= .50 to r=.80.	Braucht et al (1995)* Lehman et al (1997)* Solarz (1986) Steiner et al (1995)	RCT, RCT Cross-sectnl Cross-sectnl

Table 3.2 */continued*

Quality of life measure	Brief description	Studies which have administered the measures to homeless subjects	Design of relevant studies
Comparative measure of quality of life (Osborne et al, 1993)	An index of subjects' estimates of well-being of others is created (an other- index), along with an index of subjects' assessments of themselves (a self-index). 9 point scales ranging from very good to very bad. The other-index is subtracted from the self-index, yielding two comparative difference scores. By computing the comparative difference scores in this manner, a zero difference score would indicate 'veridical' estimates: subjects' state they do not have a problem and no one else does, or they state they do have problems as does everyone else. It is not specified how many domains are assessed; one could assume that only one question was asked.	Osborne et al (1993)	Cross-sectnl
Nottingham Health Profile (Hunt et al, 1986)	The NHP consists of 38 statements which reflect problems with respect to six dimensions of QOL: emotional reactions (9 items), energy (3 items), sleep (5 items), pain (8 items), physical mobility (8 items) and social isolation (5 items). Respondents are asked to rate 'yes' or 'no' to each statement. Within each dimension statements have been weighted empirically in terms of their perceived severity. Each dimension has a range of possible scores of 0-100, where a score of 100 would be a score indicating the presence of all possible perceived problems measured on that domain.	George et al (1991) Pickin (1990)	Cross- sectnl Cross-sectnl

* *For further details on these studies please see table 2.6 and 2.8 in previous chapter*

Methods of quality of life measurement

Overall five different measures were used in the fourteen studies. Given that there is no gold standard for measuring quality of life there was in fact, less variation in the number of different measures used than previously expected. The choice of measure often required careful consideration of domains and global measures of quality of life in order to balance sensitivity, precision, responsiveness against respondent burden, non-intrusive, relevance, ease of interpretation. Different rating periods and different data collection methods were employed for the different instruments; some were in an interview format and others took the form of self-completed questionnaires.

Many of the studies evaluating interventions for homeless mentally ill people (Rife, 1991; Drake et al, 1997; Lehman et al, 1997; Marshall et al,1995) (see Table 2.6 and 2.8 for more details) used the Lehman Quality of Life Interview (QOLI) which measures objective and subjective quality of life (Lehman, 1988). A further cross-sectional study used this measure (Marshall et al, 1996). This is administered in a structured interview where respondents are asked to rate their satisfaction with several domains of life including living situation, finances, daily activities, family relations, social relations, and safety, as well as their general life satisfaction (Delighted-Terrible faces scale).

Two studies (Cauce et al, 1994; Caslyn and Morse, 1990) used the Life Domains Scale (LDS; Baker and Intagliata, 1982) which provides an assessment of satisfaction with quality of life in 15 domains (see table 3.2). Cauce et al (1994) investigated the effectiveness of services for an adolescent client group in Seattle, USA. This was a research demonstration program which implemented and evaluated an intensive mental health case management program for homeless adolescents using a quasi-experimental design and three month follow up. Calsyn and Morse (1990) also used the LDS to measure differences among homeless men and women (n=248) staying in shelters in St Louis, Missouri, USA.

Five studies, though not all intervention studies, measured subjective quality of life by using measures based on Andrews and Withey's delighted- terrible faces scale (1976) with 7 faces expressing various feelings (delighted, pleased, mostly satisfied, mixed, mostly dissatisfied, unhappy and terrible) (Braucht et al, 1995; Morse et al, 1997; Lehman et al, 1997; Solarz, 1986; Steiner et al, 1995).

Two published studies (Pickin and Ramsel, 1990; George et al, 1991) measured health related quality of life or perceived health status of homeless people in Britain in the early 1990's using the Nottingham Health Profile (NHP) (Hunt et al, 1985). In George and colleagues' study, 340 homeless people were sampled from Sheffield from sites including hostels, hotel accommodation and a probation day centre. Pickin and Ramsel (1990) sampled 85 homeless from fourteen bed and breakfast hotels in Manchester and a further Manchester study (described in Pickin and Ramsel, 1990 but not referenced) of homeless families (number sampled not reported).

Quality of Life Results

The discussion of quality of life in many of the studies is hampered by poor reporting of methods and results - often quality of life is only one of numerous outcomes. Often, results are not fully reported if not significant. There was no comparison with normative data for any of the intervention studies.

The quality of homeless people's lives

The prime impetus for the cross sectional studies was usually to assess the quality of life of homeless people and this was often reflected in more fully reported data than the intervention studies. Three studies reported an overall general satisfaction with life on most areas (Osborne et al, 1993; Steiner et al, 1995 and Solarz, 1986) although lower than a general population. In Steiner et al's (1995) study of 188 homeless men attending a day centre in Louisville, subjects completed an interviewer assisted instrument that assessed self-perceived quality of life using the Perceived Quality of Life (PQOL) scale which is based on Andrews and Withey's scale. The men who were mostly white, unmarried and unemployed indicated general satisfaction with physical and cognitive abilities, but significantly lower satisfaction with the social aspects of their lives.

Solarz (1986) in her thesis examined homeless from a temporary shelter (n=125). She chose 25 items from Andrew's and Withey's 123 items and added a further 2 new items.

Global quality of life and seven domains were assessed: leisure and independence, work and finance, safety, family, social support, housing and self with internal reliability ranging from r= .50 to r=.80. The baseline results which are reported in table 3.3 indicated that participants felt between 'mixed' and 'mostly satisfied' about their lives as a whole. Scores were compared to normative data for the instrument and indicated that the homeless generally assessed their satisfaction with their quality of life as lower in all areas.

Table 3.3: Summary of mean Faces Scale in homeless individuals from a temporary shelter in Detroit, USA (Solarz, 1986)

Scale	Mean	SD
Global	4.3	1.4
Housing	3.9	1.4
Finances and Employment	2.6	1.4
Safety	3.9	1.5
Self	4.6	1.2
Social support	4.7	1.1
Family	4.2	1.7
Leisure and independence	4.4	1.3

Scale
1 = delighted
2 = pleased
3 = mostly satisfied
4 = mixed
5 = mostly dissatisfied
6 = unhappy
7 = terrible

Osborne et al (1993) have shown how entrenchment in homelessness can alter perceptions of quality of life and suggest caution in interpreting data on the problems of homeless people. They used a sample of homeless individuals living on the street or in shelters in Austin Texas, USA (n=198): 90% were male; 90% were single, separated or divorced; 78% were Caucasian and relatively young (mean 33 years). The homeless generally reported positive quality of life, in the face of what appeared to the interviewers to be a life of poor quality. Quality of life was measured using an index of subjects' estimates of well-being of others (an other- index), along with an index of subjects' assessments of themselves (a self-index). 9 point scales ranging from very good to very bad were used. The other-index is subtracted from the self-index, yielding a comparative difference score. By computing the comparative difference scores in this manner, a zero difference score would indicate what the authors term as 'veridical' estimates: subjects' state they do not have a problem and no one else does, or they state they do have problems as does everyone else. Higher numbers resulting from the comparative different scores reflect that the individual is better off than others; lower numbers indicate the belief that others are better off than self. 56% rated their quality of life above the midpoint of the scale and subjects estimated that 52% of all Americans had a quality of life rating above the midpoint. The mean comparative estimation difference scores were -.323 (median -.022) for quality of life. The authors note that policy makers should remember that the homeless are using a drastically different comparison group (from that of the general population) in evaluating their need for services. If they don't seek treatment because the harsh reality of street life tells them that there are many others worse off then they are, treatment seeking behaviour will only change once their comparison or reference group is changed. No further work has been completed on this theory of quality of life measurement for other homeless populations.

Only one study looked at the quality of life of different subgroups (Calsyn and Morse, 1990). Homeless women were found to experience a higher quality of life in general than homeless men ($p<.001$) and were more satisfied than men in 7 of the 14 areas measured ($p<.01$): current place of residence; neighbourhood, food, people they live with, daily activities, spare time and available services and facilities. The authors concluded that this 'gender gap' could be accounted for by the fact that women were more likely to be caring for children and received more public income assistance. They admit that they cannot distinguish whether the fewer services received by homeless men than women is related to gender as such, or to prioritisation of families with children over single individuals.

The two British studies (Pickin and Ramsel, 1990; George et al, 1991) which used the NHP were able to compare results to normative data drawn from a housed general population. The results from these studies are shown in Table 3.4. Each of the NHP's six dimensions are shown for all homeless populations and these are compared to the NHP references values published in the user manual (Hunt and McKenna, 1991).

Table 3.4: Mean NHP scores of homeless populations and reference values

	Single homeless in B&Bs in Manchester (Pickin and Ramsell, 1990) (n=85)	Homeless families in Manchester (cited in Pickin and Ramsell, 1990) (n not reported)	Single homeless in Sheffield (George et al, 1991) (n=340)	NHP reference values (Hunt and McKenna, 1991) (n=6506)
Emotional distress	23.7	32.1	32.4	16.7
Social isolation	20.5	22.6	30.1	6.9
Sleep	25.1	27.3	31.1	21.6
Lack of energy	19.5	33.2	27.2	15.4
Pain	8.3	11.0	11.6	4.7
Physical mobility	3.8	6.4	8.7	3.7

For most NHP dimensions the homeless populations scored much higher than the housed comparison population. All three studies only measure health related quality of life at one time period. Statistical testing cannot be carried out as all of the studies, including the normative data, failed to report standard deviations.

Detecting change in quality of life

Studies that detected no time or intervention effects

Some of the intervention studies failed to detect change in quality of life. Cauce et al (1994) using the LDS with adolescents found no evidence of a difference at the three month follow up in quality of life outcomes in the different intervention groups; Marshall et al (1995) found no difference in quality of life between case managed clients and those offered usual care at 14 month follow up. This may be due to a number of reasons such as length of follow up, effectiveness of the intervention and the severity of the population under study (all of which have been discussed in the previous chapter),(also regression towards the mean, comparable amounts of overall services). The issue of instrument responsiveness, in the intervention studies needs some discussion. A measure used to evaluate change over time should tap behaviours or abilities susceptible to change in response to the intervention under study (Patrick and Erickson, 1993). It is imperative, in studies evaluating the impact of interventions, that measures are able to detect changes that are of importance not only clinically but to patients. Jenkinson (1995) suggests that researchers in the rush to evaluate outcomes should not ignore this important aspect of instruments. Ideally researchers evaluating interventions should be able to quantify the measure's ability to detect change and to be able to assess whether they over-represent or under-represent the magnitude of that change. However, many of the instruments that appear suitable have not been systematically evaluated to assess their responsiveness to clinically significant change, including comparisons with other instruments. Researchers need to know whether different measures provide a similar picture of change; but Jenkinson et al (1995) notes that caution is required when interpreting change scores from health status measures.

Studies that detected time effects but not intervention effects

At the final follow up period which ranged from 6 months to 18 months, three of the experimental studies failed to detect statistically significant intervention effects but found time-related effects for some of the quality of life variables, thus demonstrating the sensitivity of the instrument. Effect sizes could not be calculated in the other experimental studies mentioned because of insufficient reporting of data. At the final follow up period Lehman et al, (1997) found no difference between groups on quality of life outcomes, although both groups did improve significantly on all areas of life satisfaction between baseline and 12 month follow up.

Drake et al (1997) considered the quality of life as secondary outcomes. Five subjective quality of life areas (general life, housing, family relations, leisure and finances) and five functional status areas (finances, living skills and family contact) from the QOLI (Lehman et al, 1988) showed significant main effects for time ($p<.01$). Two interactions between treatment group and time were significant (satisfaction with social relations and amount of social contact), however, after applying a Bonferroni correction for multiple tests, no significant difference relating to the treatment group remained.

Braucht et al, (1995) investigated the effectiveness of services offered by a substance abuse service agency. Life satisfaction was measured in two domains: family satisfaction and general life satisfaction, using the delighted-terrible faces scale. Mean baseline scores (2.76 and 3.35) indicated that respondents were generally unhappy with their family situation and life in general. No differences were found between different interventions groups, although both groups improved from baseline to 10 month follow up (p<.001). Standard deviations were not reported so effect sizes could not be calculated.

Studies that detected time and intervention effects

The only study to detect both group and time effects was Lehman et al (1997) at the interim six months follow up rather than at the final 12 month follow up. The group of homeless mentally ill people in receipt of Assertive Community Treatment were more satisfied than the comparison patients with their general well-being, their neighbourhoods and their health. No between-group differences were found on satisfaction with safety, family relations, social relations or finances.

The largest effects from the studies using the Lehman Quality of Life Interview arose from a before-and-after design (Rife et al, 1991) [large effects on global well being (e.s.=1.09), living situation (e.s.=1.15), finances (e.s.=1.02), safety (e.s.=1.71) and health domains (e.s.=0.77)]. The lack of a control group is a major flaw in this study.

Outcomes in Studies of Homeless People: Concluding Remarks

This summary will assesses the utility of these studies in the context of the evaluating the health advocacy approach for homeless people in temporary accommodation Not all the research on quality of life of homeless people is relevant to this population. Nevertheless there are some useful messages. In all the studies which address subjective quality of life of the homeless, a balance has to be struck between sensitivity and precision of measurement. "Global" measures tend to be nonspecific, whereas the more precise multidimensional measures are difficult to report in simple terms. Marshall et al (1996) examined relations between objective life circumstances and life satisfaction using structural equation modelling of two waves of data obtained from homeless and mentally ill homeless people (n=298). One of the findings from this study advised future researchers to measure both domain-specific and general life satisfaction in order to differentiate general effects from domain-specific effects and illuminate possible important relationships. This advice is pertinent to the study of the temporarily homeless population.

Many studies claim to have improved the quality of life of the homeless, but much fewer have managed to formally measure and substantiate this claim. Results were not always reported in enough detail to allow statistical testing or meta analysis, and often where results were not found to be significant, quantitative data were not reported at all. A number of studies used the same measures, allowing the comparison of results across studies. The most relevant studies in terms of population and area studied are: Solarz (1985) who sampled families in temporary shelters and used the Faces Scale, which appears to be one of the most easiest measures to interpret and has been used fairly widely. The British studies (Pickin and Ramsel, 1990; George et al, 1991) used the NHP, unfortunately, however, these three most pertinent studies were not longitudinal so no change was measured.

Not all of the quality of life instruments were used in follow up studies. Of those that were, only the Lehman Quality of Life Interview schedule and the Faces Scale detected statistically significant change over time. As noted in the previous chapter, finding intervention effects may be particularly difficult in populations with a high prevalence of mental disorders or substance misuse or both. It is possible that a greater improvement would be achievable in a less morbid population. Nevertheless, quality of life as an outcome measure in the assessment of homeless persons has been shown to be a valuable tool.

It can be concluded that there is no "gold standard" quality of life outcome measure. In seeking to describe the way in which homelessness affects the quality of an individual's life and to measure the impact of interventions, it is important to reflect the subjective perception of the individuals. There is a missed opportunity in the body of research described in this chapter; none of the studies have measured quality of life by measuring the discrepancy between actual and desired life circumstances, which suggests itself as an appropriate method of tackling the experience of the homeless. Osborne et al (1993) highlighted how social comparison help to understand the problems and complexities of providing services for the homeless. This is especially important when assessing change over time particularly if homeless people are housed during the intervention. Entrenchment in homelessness can alter perceptions of problems, as homeless people may be using particular comparison groups in evaluating their quality of life or their need for services. One method of accommodating and capturing this potential change in people's values or reference groups may be to use questionnaires which allow subjects to indicate weightings of importance of domains or items. Of the four quality of life measures which have used the "discrepancy" methodology discussed earlier, the Life Fulfilment Scale (Baker et al, 1994) appears the most useful in a British health service research setting with high sensitivity, face validity, and simple and relevant domains.

4

PRESENT RESEARCH STUDY: THE FAMILY HEALTH PROJECT INTRODUCTION AND METHOD

INTRODUCTION

This chapter will present the methodology used in the study. The literature review (chapter two) demonstrates that there has been only sparse and inconsistent research into evaluating the effect of specific interventions for homeless people in Britain. Very few evaluations of work with homeless clients have been designed in such a way as to provide a proper test of their effectiveness or efficacy. The background to the present study has been outlined in the introduction at the beginning of this thesis. The study aimed to measure the effectiveness of a health advocacy worker's casework with homeless patients in the context of a clinical trial: the setting was a large health centre in inner-city Liverpool, and the client group were homeless people moving into hostels and other accommodation in the area and registering as temporary resident patients at the health centre.

Within the positivist paradigm (Rossi and Wright, 1986) the ideal design of a study investigating the efficacy of a new intervention in health care is a randomised double blind controlled study (RCT), in which patients are allocated randomly to the 'control' or 'intervention' group, and in which neither patient nor evaluator is aware of the treatment group of any individual patient. This ensures that neither patient selection nor assessment of outcome are biased by the expectations of the patient or evaluators. Any significant differences in the results for 'control' versus 'intervention' patients are then very likely to be due to the intervention rather than to 'confounding' variables. Chapter three outlined the importance of measuring both process and outcome data when evaluating an intervention; outcomes are the results attained but process measures help to describe how these outcomes are achieved (Donabedian, 1980).

Aims of the study

The present study of the Family Health Project (FHP) was designed as a quasi-randomised prospective controlled trial to examine the impact of employing a health advocate for temporarily registered homeless patients at a inner city health centre in Liverpool. The intervention will be described in terms of the services available to homeless patients at Princes Park Health Centre (PPHC). Briefly, the health advocacy approach involved offering additional help and support from a health advocate to patients in the intervention group, whilst 'control group' patients received 'usual care' from the same health centre.

Hypotheses

Box 4.0	**Hypotheses tested in this study**
Hypothesis I:	A health advocate working with a Primary Health Care Team in an inner city health centre can improve the health related quality of life of homeless patients.
Hypothesis II:	A health advocate working with a Primary Health Care Team in an inner city health centre can reduce the workload of GPs and other health workers in relation to homeless patients.

Setting

The study was set in Liverpool, the centre of the Merseyside conurbation in the North-West of England, an industrial city and port with a population of 452 000 (OPCS, 1992). The largely working-class population suffers from high levels of unemployment and the city is rated the most deprived area in Britain on the 1998 Local index of (DETR, 1998). The practice area of Toxteth is situated close to the city centre and much of this area is classified as having high levels of deprivation. The area, which covered most of the Granby Ward, had a population of 13,021 (OPCS, 1992). There are long-established ethnic communities concentrated here and Toxteth contains the majority of the City Council's temporary accommodation. The Mental Illness Needs Index (Glover, 1996) for this ward was one the highest in Liverpool (138.5 compared to 118.2 for Liverpool overall) indicating the high levels of mental health morbidity in the area in general.

Ethical Approval

Ethical approval was sought and obtained from the Royal Liverpool Research Ethics Committee 1992.

METHOD

Study design

It was important, for considerations of external validity, to allocate participants to the two arms of the trial without disrupting the work of the health centre receptionists. The study was therefore designed as a quasi-randomised controlled trial (Cook and Campbell, 1979) with sequential patient allocation to intervention or 'usual care' groups in alternating periods of 1-3 months over a total intake phase of 3 years. All new homeless temporary registrations at Princes Park Health Centre (1993-1995) were allocated to the intervention group or control group according to the month of registration (see Fig 4.1). Participant self registration replicated normal practice; randomisation at registration obviated the need for patient consent to group allocation (only one option was available to the control group). Patients in the intervention group were offered the extra input from the health advocate, but still had the option of refusing or accepting minimal help (eg registration only). Consent was therefore only required (for all patients, regardless of group) for the completion of questionnaires and for permission to be contacted to complete follow up questionnaires.

Fig 4.1 **The recruitment schedule for new temporary homeless patients to the study**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1992		Discussion		Obtain funding		Plan			Recruitment of project team			Induction
1993	▨ Pilot Study	▨	□	▨	□	▨	▨	□	□	▨	▨	□
1994	□	▨	▨	□	□	□	▨ Support Worker	▨	▨	□	□	▨
1995	▨	□	□	▨	▨	▨	□	□	□	▨	▨	□

New homeless temporary patients allocated to :

▨ Intervention Group	□ Control Group

The sample

The study participants met the following criteria for *inclusion*:

1. they were living in temporary accommodation (ie family hostels, private bed & breakfasts/ hotels, women's refuges, alcohol rehabilitation hostel and young persons hostel) as a result of being statutorily accepted as homeless[1]. (See box 1.1 in chapter one for further description of the criteria for being accepted for rehousing and waiting in temporary accommodation).
2. they were living in the Princes Park Health Centre practice area which covered Toxteth and parts of the Dingle area in Liverpool
3. they were temporarily registered with Princes Park Health Centre between January 1, 1993 and December 31, 1995.

Exclusion criterion:

1. Patients from the alcohol dependency rehabilitation hostel who were in receipt of services from the health centre but who were <u>not</u> considered to be homeless.

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[1] With the exception of patients staying at the alcohol dependency rehabilitation hostel, most households in the client group had presented themselves as in priority housing need to the Local Authority for rehousing under Part III of the 1985 Housing Act. These people will have demonstrated that they were homeless as defined by the Act, or they will have been under investigation prior to acceptance. Besides being homeless they had to be in 'priority need' categories, which include pregnant women and their partners, families, victims of fire, flood or illegal eviction, vulnerable because of old age, mental illness/handicap, physical disability or other special reasons. In addition they had to prove that they were not intentionally homeless and that there was a local connection with the Local Authority. (Some reasons for homelessness, such as domestic violence are exempt from this ruling). Within Liverpool City Council Housing Directorate there are extensions to this i.e., people leaving prison, young adults leaving care, all women, men aged 16-18 years.

Recruitment and mode of registration

Subjects were recruited during a 36 month period January 1, 1993 to December 31, 1995. Registration with Princes Park Health Centre took place in a number of ways and was recorded for each new temporary resident:

- *Self registration:* patients registered themselves by either presenting at the health centre to see a GP or the practice nurse, or they could request a home visit (available to both intervention and control groups);
- *Outreach registration*: some patients in the intervention group were registered at one of the hostels by the health advocate on one of her routine weekly outreach visits during intervention phases.

The control group.

During 'control' months new temporary resident patients could register themselves at the health centre (including appointments with a GP or practice nurse) (Box 4.1); they could also request GP home visits. New patient questionnaires, once obtained, were also available in the patient's notes (see Appendix II).

Box 4.1 Pre-existing services available at the health centre (available to intervention and usual care groups)

- Seven General Practitioners (GPs) (some of whom worked part time) and one trainee
- Two part time practice nurses
- Three part time counsellors
- Three district nurses
- Three health visitors (one visited the large women's refuge weekly)
- Other workers held regular clinics at the health centre including:
    - Somali link worker
    - Chiropodist
    - Psychiatrist
    - Dietician
    - Midwife and
    - A worker from the Citizens Advice Bureau.

The Intervention Group: The Health Advocacy Approach

The existing primary health care team at the health centre was enhanced during the project by the employment of a designated non-medical health advocate (Family Health Worker; FHW). During 'intervention' months, newly arrived temporary residents were offered an 'intake' consultation with the health advocate during which the new patient questionnaire and health history questionnaire was completed (see Appendix II & III). Individuals and families arriving at hotel and B&B accommodation during intervention periods could be registered at the health centre or by the health advocate on her weekly outreach visits. Subsequent casework was arranged between the health advocate and intervention group patients. The intervention was pro-active to the needs of the client group and it emphasises health advocacy, empowerment and the promotion of health, social and emotional well-being (see box 4.2).The job description of the health advocate was that of a generic worker functioning both in the health centre and in an outreach capacity, helping homeless people to access health and associated care more effectively and assisting their smooth passage through the service. Case management responsibilities were divided between the GPs and the health advocate who in this study was a Registered Mental Nurse (RMN) with considerable community experience. Many of the transferable elements of effective care for different homeless populations which were highlighted in the systematic review (chapters 2 and 3) were adopted in this study.

Box 4.2 Key Principles for the Health Advocacy approach

- The health advocate for homeless people was an additional resource in an established mainstream service.
- Effective intervention necessitated collaboration and inter agency work. The needs of homeless individuals and families were often complex. Health needs were interwoven with social and housing needs.
- Emphasis was placed on outreach work, encouraging homeless individuals and families in the practice area to access services, and making links with the primary health care team and other agencies.
- A flexible and holistic approach to health care was necessary, often with the health advocate stepping outside her perceived role. All interventions were related to the needs of the individual or family.
- Advocacy was a major part of this service, helping homeless people's voices to be heard and their health needs to be met.
- Giving people adequate information, both written and verbal, is vital. It was important not to assume that people knew how to access services.

Case management:

Case management figured highly in best studies in the systematic review. Rife et al (1991) reviews the literature on the different models of case management for homeless people with mental illness, finding it to be an essential component of effective community support systems. Case management for homeless people is also described in depth by Savarese et al (1990) as a technique which can be applied in the provision of health care to achieve positive outcomes, in particular the quality of life of its recipients. Although case management tends to be associated with the mental health field (Marshall et al, 1997; Marshall et al, 1998) these models may be adapted for other client groups such as homeless families (Toro et al, 1997; Zwarenstein et al, 1999). A case manager is someone who guides a person in crisis to the appropriate services to address the immediate emergency and appropriate services and prevent future crisis. One component of case management is social advocacy: a willingness on the part of the practitioner to address the client's financial entitlements, housing, medical services, legal assistance, community support services, child care and so on.

Mainstream services versus specific services to homeless people:

The health advocate was not a solitary worker providing health care to homeless people, but an additional resource within an established mainstream service. The health advocate's role with regard to patients in the intervention group was to assist the whole practice team to meet the needs of a transitory group of homeless individuals and families without impairing the capacity of the health centre staff to provide primary care for the existing list of 10,000 permanent patients.

Multi disciplinary team:

The PHC team consisted of at least eleven other health professionals at any one time (see Box 4.1). There were some variations in staffing throughout the 3 years of this study. The health advocate was able to refer patients to other members of the PHCT as well as outside agencies (see inter agency work below).

Outreach peripatetic services:

The health advocate adopted homeless outreach and engagement methods, i.e., maximum effort to develop a positive relationship with the homeless person during home visiting, and assistance with basic needs such as food, shelter, health care and transportation. Where necessary, appointments were arranged by the health advocate or hostel staff for people to see GPs. The outreach role also entailed advising hostel and refuge staff on health related issues and local health services.

Advocacy & prioritising needs:

An advocacy service has been shown to be an important element of service for the homeless in view of the organisational and system barriers, as well as patient factors which contribute to low levels of service to the homeless (Rog et al, 1988). The health advocate helped patients to list and prioritise their health needs. This was done by offering health checks for patients on registration, checking blood pressure, weight, peak expiratory flow, family history, smear & immunisation status (see Appendix III).

One way in which the health advocate attempted to reduce workload and stress for general practitioners was to record relevant information, with clients, before they saw the doctor for a first or follow-up appointment. Before the project started, the general practitioners frequently found consultations with new temporarily registered homeless people quite overwhelming. They had no advance information whatsoever on such patients, and had to try and sort out relevant medical facts from amongst stories of complicated social and emotional needs. Often there would be more than one family member requiring medical attention. By comparison; a permanently registered patient would have medical notes dating back to childhood, would previously have completed a questionnaire giving the GP information about lifestyle, medical history and health risks, might already have a good relationship with the GP, and in most cases would be aware of facilities and services at the health centre.

Emphasis was placed on case management plans that followed the priorities stated by each patient. This often involved assistance in obtaining practical help and entitlements (eg arranging clothes or cooking utensils) and sometimes meant relegating direct health interventions to a position of low priority, since the critical aim at first was to befriend the individual, to develop trust and familiarity (Susser et al, 1990). A flexible and holistic approach to health care was necessary, often with the health advocate stepping outside her perceived role. Patients with multiple problems, who were more difficult to engage, were offered advocacy to extract needed services from more 'threatening' agencies such as social services and housing agencies.

Providing information:

New patients were given adequate verbal and written information on primary health care services and other facilities in the area; and guidance on how to access services effectively. Family planning information and advice was also available.

Collaboration and inter agency work:

The needs of homeless individuals and families were often complex. Health needs were interwoven with social and housing needs. Services needed to be integrated. This involved liaison with and referral to other agencies eg. social services, health visitors, drug dependency agencies, education welfare officers.

Support:

Offering emotional support often meant allowing people time to talk and "off load", counselling, focussing on "here and now" issues. Practical support was also available, eg. organising clothes, toys, baby equipment, pot and pans and furniture; and supportive services such as monitoring medications, assisting with transportation etc.

Termination of relationship:

Patients were visited when rehoused, to terminate the relationship appropriately rather than abruptly, and to assist them to access local primary health care services in their new areas.

Supervision:

Was important to the role of the health advocate. It was provided by one of the GPs at the health centre with a special interest in the homeless and this usually took place once a week.

Pilot study and other changes over the 3 years of this study

The methods and instruments of the study and the implementation of the intervention were tested in a two-month pilot/ feasibility study. This pilot phase acted as a period of collaboration and joint working between the project team, health centre staff, hostel staff and housing workers. Following this, a number of alterations to the design of the service were made, including the decision to extend the service and increase the sample size by providing an outreach service. The 'unplanned referral' group was proposed as an alteration to the design at the insistence of the primary care team. This comprised homeless people who registered during control phases, but were deliberately referred to the project team, over-riding the normal allocation procedure. This occurred when a member of the PHCT felt that essential help was needed from the health advocate, for example, patients with severe physical or mental health problems, or families with complex child protection issues.

No major alterations to the instruments used in the pilot study were made.

Data Collection & Study Instruments

For the present study a combination of approaches was adopted in order to gather patient data. It was important not to measure too many outcomes as there are statistical drawbacks to using multiple outcome measures. First, the more outcomes used, the greater the sample size needed (Roland and Torgerson, 1998). Second, the more outcomes used, the higher the probability of reaching spurious statistical significance. Limiting the number of outcome measures reduces the risk that a useless or marginally effective treatment will be erroneously presented as demonstrating an important improvement (Guyatt, 1995).

Main outcome measures:

Health related quality of life:

- Nottingham Health Profile (NHP; Hunt et al, 1986)
- Life Fulfilment Scale (LFS; Baker, 1994) and
- Faces Scale (Andrews and Withey, 1976)

Health service utilisation:

- Primary and secondary health care utilisation data from primary care workload figures.

A brief description of the instruments used in the study are given below and a copy of each is provided in the Appendices. The questionnaires and outcome measures used in this study are summarised in Table 4.1. The NHP, LFS and Faces Scale are brief self-rated questionnaires, taking a total of around 10-15 minutes to complete with the help of an interviewer where necessary. Given the difficulty of engaging and following up homeless people, it was extremely important not to overburden them with clumsy and time consuming questionnaires.

A baseline interview was conducted with each patient (or parent of child registered) in the form of a structured questionnaire (Appendix II). If self-registration had taken place, the researcher endeavoured to meet the patient at their current temporary residence. The questionnaires were administered by the researcher to maximise the response rate and minimise the possibilities of errors of misunderstanding and missing items (Guyatt, 1997). The health advocate collected questionnaires from the intervention group and the researcher contacted the people in the control group soon after registration at the health centre, asking for their consent to follow up. The aims of the project were described and confidentiality was assured (see below).

Non-English speaking patients were contacted in the same way with the help of the Somali link worker, but, as was the case with other studies (e.g. Marriott et al, 1997) they were excluded from the quality of life assessments sampling frame as resources were unavailable for translation of outcomes. Services were at any rate slightly different for these patients as many of them (both intervention and control group) accessed health services through the Somali link worker.

Confidentiality

The aspect of confidentiality was extremely important in this study. Patients must feel their responses will not prove counter-productive or detrimental in any way to their treatment from primary health care. Each individual taking part in the study was made aware at each rating that they could ignore any questions they felt uncomfortable answering, that a refusal would not affect the care they received and that neither they nor any other participant would be identified in any report concerning the study findings. Patients were informed that the temporary resident questionnaire would be kept with their confidential medical records - and that under the Data Protection Act (1984) and Access to Health Records Act (1990), they had the right to access to their records.

Follow up period

A 3 month follow up period was adopted, after which the three health related quality of life measures (see below) were repeated. The period of 3 months was regarded as sufficient for measuring improvement occurring as a result of the health advocacy input. This intervention was short term and effects were not expected to be substantial over a more lengthy period. This was also the average time spent in temporary accommodation in the practice area, and it was expected that a longer follow up period than this would have led to greater attrition. This element of the project design meets the 'contiguity criterion' (Sidani and Braden, 1998), ensuring that treatment and effects are adjacent in time and space.

Blinding of observers was not achieved, since the sampling method and intervention required the staff to be aware of the allocation of each patient (a red spot on patient notes denoted a control patient and a green spot denoted an intervention patient). The sequential allocation to one of the two arms of the study over alternating periods of 3 months was intended to minimise patient awareness of treatment group; this did not amount to formal blinding in all cases.

Research worker role

The role of the researcher (SR) was to ensure the implementation of the third aim of the project: to evaluate the effectiveness of the health advocacy work with homeless people. This involved ensuring that the research process was completed and coordinated alongside the clinical work of patient contact and care, and was particularly important as data were collected routinely over a long course of time. The researcher undertook the collection and management of data, data entry from questionnaires and patients' medical records, logs of activity, statistical analysis, liaison and the general implementation of the control and intervention phases.

Table 4.1 Tools employed in the evaluation of the Family Health Project

Tools employed	Collected from:	Description	Purpose	Time implemented
Demographic and Lifestyle characteristics				
Temporary Resident Questionnaire (see Appendix II)	All patients in the study	Small questionnaire, similar to the new patient questionnaire for permanent patients. Retained in patient's medical notes.	To provide demographic & lifestyle information and to provide the GPS with some background patient information	Completed when patient registers with Princes Park Health Centre
Health service utilisation process and outcomes				
Patient's Temporary Medical Notes Health service utilisation statistics	Routinely collected on all patients included in the study.	Records all contacts with the health centre and FHW.	To provide numbers and types of contact with the health centre and the FHW.	Data was collected from the notes either when a patient is known to have left the area or after 3 and 6 monthly periods.
Quality of life outcome measures				
Life Fulfilment Scale (Baker et al, 1994) Faces Scale (Andrews and Withey, 1976) (see Appendix V).	Given to all those over sixteen years.	The LFS measures fulfilment in life by asking respondents to rate the importance and satisfaction of 10 aspects of their lives. Global QOL was measured by a separate "Faces Scale": respondents are asked how they feel about their life as a whole. The choices range from "delighted" to "terrible".	To allow respondents to impose their own perspectives on the relative importance of particular areas of their lives and their satisfaction with them.	First issued at or near the time of registration and then 3 months later.
Nottingham Health Profile (Hunt et al, 1986) (see Appendix IV).	Given to all those over sixteen years.	The NHP is a questionnaire containing 38 items. It measures each of these dimensions: emotion (nine items), sleep (5 items), social isolation (5 items), energy (3 items), pain (8 items) and physical mobility (8 items).	The NHP is a measure of perceived distress with proven high validity and reliability. The NHP relates to how people <u>feel</u> when they are experiencing various states of ill health.	First issued at or near the time of registration and then 3 months later.

Measures of Health Related Quality of Life:

The value of subjective measures of health has already been discussed in chapter three. Measuring subjective aspects of health status was considered appropriate to the evaluation of health advocate's client-led intervention which focused on health advocacy and empowerment. The value of self-reported health status has been demonstrated as a valid means of summarising the objective and subjective aspects of health (Goldstein et al, 1984). For this study, health related quality of life outcomes were defined in terms of a measure of self-defined life fulfilment (Life Fulfilment Scale [LFS]; Baker, 1994), perceived 'global' overall quality of life (Delighted-terrible faces scale; Andrews and Withey, 1976) and a measure of distress and subjective health (Nottingham Health Profile [NHP]; Hunt et al, 1986) (see Appendix IV & V). The broad concept of health related quality of life is addressed by this battery of three questionnaires. This is compatible with the quality of life framework discussed in Chapter 3; covering the main areas of quality of life and being indicative of the concerns of homeless people.

The LFS, NHP and Faces Scale outcome measures were chosen by considering the intervention, the lives of the homeless, previous measures used in similar studies, and the definition of quality of life as well as the properties of the measures themselves. The LFS and the NHP related well to the aspect of opportunity (Patrick and Erickson, 1988) which is the potential for an optimal state of health for a given client; the NHP was reported to be the only measure which tapped into this aspect of quality of life. The LFS through its "discrepancy" methodology (see chapter 3) i.e., the discrepancy between the actual and desired life circumstances, is also able to measure this aspect. The three measures were seen as being complementary eg, the NHP had a longer track record of proven reliability and validity compared to the LFS; the scoring system on the LFS allowed analysis by item, by sub-scale and by overall score; the Faces Scale provided the benefits of a simple visual analogue scale.

The measures chosen were designed so that they could be self completed or if required, completed with the aid of the interviewer. All three measures performed well in the pilot stage of the project, proving simple to understand and quick and easy to administer.

Temporary residents over sixteen years of age were asked to fill out questionnaires on registration at PPHC and after a period of 3 months. It was decided not to attempt to measure quality of life of homeless children due to the difficulties in measuring child health status (Patrick and Erickson, 1993). For example, changes in questionnaire content would be required for children of different age groups (Fink, 1989 cited in Patrick and Erickson, 1993).

Validity Testing of Outcome Measures:

Validity

The validity of subjective health scales (whether or not the scale actually measures what it claims to measure) is very difficult to measure, as there is no "gold standard" with which they can be compared (Hunt et al, 1986). Validity criteria fall into three groups: content[2]; criterion[3] and construct[4] validity, and they should be met by instruments (Bowling, 1998; Donovan et al, 1993). Related to the validity of a measure is sensitivity

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[2] *Content Validity*
Content validity concerns the inferences that can be drawn from the results of the measure. Questions usually asked of measures are: do the components cover all aspects of distress /health status? Does the content of the variable match the name which it has been given? Does each item fall into at least one of the content areas being tapped? The number of items in each area should also reflect its importance to the attribute (Bowling, 1998)

Face Validity
One of the first factors which influenced the choice of measures was the one form of content validity i.e., face validity: whether or not the items in a questionnaire are relevant, appear to make sense and can be easily understood. Is the indicator, on the face of it, a reasonable one- do the items appear to be measuring variables they claim to measure? An instrument with ambiguous or illogical response categories is unlikely to be reliable or to have high levels of internal consistency (Bowling, 1998). Face validity was also required so that significant changes in the outcomes could meaningfully be related to the nature of the intervention. The measure(s) needed to be able to tap into the outcomes which the health worker could reasonably be expected to influence.

[3] *Criterion Validity*
Criterion validity assesses whether the variable can be measured with accuracy and whether it correlates with some other measure, ideally a 'gold standard'. This has little relevance where there is no agreed operational gold standard (Bowling, 1998).

[4] *Construct Validity*
Construct validity examines the relationship between underlying theoretical concerns and the measure. It is difficult to measure when the theoretical base of quality of life is relatively underdeveloped and should therefore be an ongoing process (Bowling, 1998). This type of validity is generally divided into convergent and discriminant validity.

to change[5] or 'responsiveness', an important requirement of health status measures when used to evaluate the impact of interventions (Jenkinson et al, 1995; Hays and Hadorn, 1992).

Reliability

A measure is judged to be reliable when it consistently produces the same results, particularly when applied to the same subjects at different time periods when there is no independent evidence of change (Bowling, 1998). The methods for testing for reliability which are applicable to these self report instruments include tests of internal consistency[6] and test-retest[7]. Where possible these are discussed in relation to the quality of life instruments used in this study.

Validity and Reliability in Relation to this Study

The demonstration of validity is not a 'once and for all' exercise. It should be seen as an ongoing exercise similar to the accumulation of evidence to support a scientific theory (Wilkin 1992). Norman & Streiner (1995) also recommend that validity be determined specifically for each use of an instrument, as a measure may be valid for the specific

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[5] *Sensitivity to change*
If a quality of life measure is to be used to evaluate the outcome of care for patients, then it must be shown to be sensitive to clinically significant change in quality of life over time. In a series of papers concerning the usefulness of health status and quality of life measures as evaluative instruments Guyatt and his colleagues (Guyatt et al, 1987; Guyatt et al 1986; Kirshner et al 1985) and Deyo (Deyo 1984; Deyo et al 1984; Deyo et al 1986; Deyo et al 1991) have drawn attention to the failure of existing measures to identify small but clinically significant changes.

[6] *Internal consistency*
This is the extent to which all of the items measure the same dimension. The tests assess the extent to which individual items are correlated with each other and with overall scale scores. Cronbach's alpha (Cronbach, 1951) should be calculated; it is based on the average correlation between items included in the instrument. The internal consistency is only relevant to measures containing items related to a single dimension. For a clinical measure, an alpha score of >.7 is generally considered to be acceptable (Sonquist and Dunkelberg, 1977). However it is important to remember that the individual items are included in the instrument because they are measuring slightly different facets of the patient's life fulfilment, and therefore would not necessarily be expected to be perfectly correlated.

[7] *Test-retest*
Here the test is administered to the same population on two occasions and the results compared, usually by some form of correlation. There are two potential problems: first, the initial administration of the measure may influence subsequent responses and second, there may be real changes between administrations which would lead to an underestimate of the true reliability (Hunt et al, 1986).

purpose for which it was developed, and not necessarily valid for a related but not equivalent purpose. No single piece of evidence is sufficient in itself, but is a contribution to cumulative growth of a body of knowledge about a given problem or question.

With this in mind, the question of validity was addressed in relation to the particular context and aims of this project. The criterion validity, construct validity, face validity and internal consistency of the LFS, NHP and Faces Scale were investigated comparing a separate matched comparison sample of permanently registered patients at the health centre (well women and well man clinic attenders, n=60) with a matched homeless sample (n=60) (see Appendix VI). The levels of association and correlation between the three measures have been measured and all three measures were able to discriminate between homeless and permanently registered patients. These results allow one to conclude that the measures are valid in the context of a measuring the health related quality of life of a homeless population.

The Nottingham Health Profile (Appendix IV)

The NHP is a subjective health status measure and consists of 38 questions which load on to six different 'dimensions': *emotional reactions, energy, sleep, social isolation, mobility and pain.* In the actual questionnaire the items are not explicitly categorised in this way; they have been randomly ordered. Respondents are asked simply to tick yes or no to each statement. Within each dimension statements have been weighted empirically in terms of their perceived severity. Each dimension has a range of possible scores of 0-100, where a score of 100 indicates the presence of all possible perceived problems measured on that domain. The questionnaire takes about five minutes to complete.

The NHP is described in terms of face, content, criterion and construct validity as a measure of physical, social and psychological distress associated with medical, social and emotional problems. The measure has been used successfully in primary care community and intervention studies, and has already been shown to be a reliable and valid tool for studies involving homeless people (George et al, 1991; Pickin and

Ramsell, 1990).

The Nottingham Health Profile: Validity

Content validity

Content validity is asserted by Hunt et al (1986), deriving from the method of development of the instrument, using statements generated by a large sample of patients. Interviews were undertaken with several hundred members of the public who were asked to describe their experiences of health and illness. The resulting 2200 statements were eventually reduced to 38 items (Hunt and McKenna, 1991). The use of non-patients in the development of the NHP meant that particular 'symptoms' were not specified in the measure, thus allowing respondents to score highly even if they have not been labelled unhealthy and do not consider themselves ill. The originators of the NHP have found that scores vary with socio-economic status and with the type of accommodation (Hunt et al, 1988). Population norms exist for the instrument (Hunt and McKenna, 1991) and also show a relationship between perceived health and social class. The lower social classes feel themselves to have a much larger burden of socio-emotional problems than do the others. Similarly people in rented accommodation feel more 'distress' than people living in their own homes. It is claimed that NHP items

> "do not measure health status, but rather felt distress, which may be a consequence of health problems, but may equally arise from adverse living conditions and psycho-social stress" (Hunt 1988 p29).

Thus under conditions of social deprivation, respondents may obtain substantial 'distress' scores whilst not perceiving themselves to be 'unhealthy' (Hunt and McKenna, 1991). Given that the homeless have complex social needs and relatively high morbidity the NHP was considered highly appropriate.

Criterion validity

Jenkinson (1995) highlights the problem of comparing subjective health measures, which are constructed with the intention of measuring subjective perceptions, with questionnaires which may reflect more the interests of clinical judgment than the patient themselves. Subjective health assessment questionnaires such as the NHP should pay sufficient attention to the very phenomena they wish to measure, namely subjective (non-clinical) assessment and 'be developed on surveys of lay people or appropriate patient groups' (opt cit). Jenkinson et al (1988) provides some support for criterion validity by assessing the correlation of the emotional reactions dimension of the NHP and General Health Questionnaire (GHQ-30 item) on a population of 39 rheumatoid arthritis and 43 migraine patients. A correlation of 0.49 was reported and the NHP was reported to be providing a moderately accurate measure of this domain. In another study of unemployed and re-employed men (McKenna and Payne, 1989), a correlation of 0.76 was reported between the GHQ (12 item) and emotional reactions dimension, 0.53 with the sleep dimension and 0.61 with the social isolation dimension.

Construct validity

Previous studies of homeless people have reported high levels of 'distress' (George et al, 1991; Pickin and Ramsell, 1990). Wilkin et al (1992) acknowledge that there does seem to be good evidence that the NHP is capable of identifying people suffering from chronic conditions and distinguishing between those suffering from different conditions (Hunt et al, 1986). The measure has been shown to discriminate among socio-economic groups and to predict use of primary health care (Bucquet and Curtis, 1986).

The data reported in Appendix VI goes some way to establishing convergent construct validity for all the profiles, as all three measures were able to discriminate between people with permanent housing and those in temporary accommodation.

Sensitivity to change

The Nottingham Health Profile is appropriate for use in evaluation of medical or social interventions in pre-test, post-test designs. Indeed McKewan (1993) notes that the most frequent use of the NHP has been in intervention studies measuring change in health status over time (Doll et al, 1993; Buxton et al, 1985; Lowe et al, 1990; Cox et al, 1991; De Lame et al, 1989; McKenna and Payne, 1989). Hopton et al (1991) reported the use of the NHP in measuring changes in perceived health status for patients (n=1979) before and 4 weeks after consultation with 85 general practitioners in Scotland. They concluded that the NHP may be acceptable for use as a measure of outcome in general practice if used with selected patient groups. The NHP is likely to suffer from 'floor' effects as it taps into the more severe end of the range of perceived health problems and is unlikely to be sensitive to change at the less severe end of the morbidity spectrum. However when used on a population with high scorers, this should not be a problem and the NHP should be sensitive to change over time.

Fitzpatrick et al (1992) looked at the responsiveness of four health status measures in a sample of patients with arthritis: the NHP, Sickness Impact Profile, Functional Limitations Profile and the Arthritis Impact Measurement Scales. Utilising effect sizes, it was found that the level of improvement detected by the NHP was comparatively small. It is possible that this may reflect the magnitude of improvement or different measures may provide different pictures of change due to differences in item content. No universal method, whether a complex measure or a single, global question, will be appropriate in all settings.

The Nottingham Health Profile: Reliability

Internal consistency

In the comparison of homeless and non-homeless people in Appendix VI, adequate standardised alpha scores of over 0.70 were achieved in all dimensions except energy (0.68). Kind and Carr-Hill (1987) have shown a lack of homogeneity within some dimensions (pain and physical mobility) and significant correlations between dimension scores and between items in other dimensions.

Test-retest reliability or reliability over time

Two studies of test-retest have been carried out on patients with osteoarthrosis and peripheral vascular disease, using repeat testing after a gap of four weeks (De Lame et al, 1989). High correlations (0.71 - 0.88) between scores on each administration were achieved. Hunt et al (1986) sampled from patients suffering from osteoarthrosis (n=58), in which there is little change over a period of weeks. A follow up of four weeks was chosen in order to reduce overestimation of reliability due to memory effects. The results on each of the six dimensions ranged from r=0.77 to r=85, which are considered high levels of correlation (Hunt et al, 1986). The NHP does not meet the requirements for carrying out split-half reliability as it is too short and the items are not homogeneous (Bowling, 1998). The authors of the instrument argue that it is not possible to test against an acceptable gold standard, as no suitable measure exists (Hunt et al, 1986).

The Life Fulfilment Scale (Appendix V)

The second section of chapter 3 discussed the value of measures which accommodate the different levels of importance that different people attach to particular life concerns (Krupinski, 1980; O'Boyle et al, 1992; Baker et al, 1994). The basic proposition of the LFS is that people's perception of their quality of life is a function of how satisfied they are with aspects of life which they consider important. The importance of this scale, according to Baker et al (1994), is that unlike many other measures of social functioning, it allows patients to impose their own perspectives on the relative importance of particular areas of their lives. Since homelessness is generally not chosen but enforced, measurement of such discrepancies are likely to be particularly pertinent for this population.

> "The life fulfilment scale is an important contribution to the further development of a health-related quality of life measure." (Baker et al 1994.)

The LFS was developed from Krupinski's (1980) measure, but simplified by reducing the number of items. Its sensitivity has been improved by asking respondents to assess satisfaction with their actual circumstances using a four-point Likert scale (Baker et al, 1994). To reflect the multidimensional nature of psychological well-being the scale specifies ten different aspects of life, outlined in Box 4.3. Respondents are asked to rate on a four-point Likert scale how important each aspect is to them, regardless of whether or not it applies to them personally. Then they are asked to consider each item and report (again on a four-point Likert scale), how satisfied they are with that particular aspect of life.

The scale has been developed in a series of studies on patients with epilepsy, but the authors maintain that the LFS is a generic measure which could be used in other contexts (Baker et al, 1994). Collings (1990) successfully used the measure on a non-epilepsy control sample (n=255). Epilepsy has been shown to be associated with higher than average rates of psychiatric morbidity, low levels of self esteem and unemployment (Collings, 1990) which is also likely to apply to homeless patients. Homelessness, like epilepsy, has a considerable impact on the quality of an individual's life in a number of different spheres. The content showed particular relevance to deprived populations. Initial assessment of the scale demonstrated its potential as a valid and reliable tool (Baker et al, 1994).

Box 4.3 **Contents of the Sub-scales of the Life Fulfilment Scale**
(Baker et al, 1994)

Sub-sale	**Item**	**Description**
Personal Fulfilment	1	A good family life
	2	Having close friendships
	3	A happy marriage
	4	Participating in enjoyable spare time activities
	5	Being in good health
	6	Being happy with yourself
Material[1] Fulfilment	8	Being happy where you live
	9	Having housing which meets your needs
	10	Having enough money to do things important to you

[1] Item 7, 'having a secure and stable job', was excluded from the Sub-scales as it did not load onto either sub-scale (Baker et al, 1994).

In its original form the LFS consisted of 13 items relating to areas of personal and material satisfaction. As a result of early project meetings which included the main author of the instrument (Gus Baker) the team decided to exclude three items for the sake of brevity and reduced response burden: job satisfaction, social life and standard of living. Job satisfaction was considered to be redundant in this study of homeless patients due to the high levels of unemployment. Standard of living is measured by a combination of the material items remaining in the LFS. Social life was measured by the remaining spare time and friendship items. Gus Baker granted permission for these amendments, as validation had been performed on each item (Baker, 1992).

The scoring methods and interpretations of this abbreviated measure are included in Appendix V. Scoring is completed by measuring the discrepancy between actual and desired life circumstances on 10 items. The smaller the gap between a person's actual and desired circumstances, the smaller the score (ie more life fulfilment). A high score therefore denotes low life fulfilment and a low score denotes a higher life fulfilment. The items comprise two Sub-scales (see Box 4.3); the first six items make up the 'personal' sub-scale and the last three items go into a 'material' sub-scale (the 'job' item does not load into either). The scores of all the 10 item discrepancy scores are summed to give an overall LFS score.

The Life Fulfilment Scale: Validity

Content Validity

The LFS is an instrument which provides us with a single overall outcome measure, two Sub-scales and 10 single-item scores. Consequently it can provide both detailed information on quality of life components affected differentially by the intervention, and a single measure of overall effect (Bullinger, 1993). The items in the LFS adequately covered the domains which are most highly related to general satisfaction: 'the self', standard of living, family life, marriage, friends and work (Campbell, 1981: see previous chapter for a more detailed discussion).The items in the LFS also corresponded with Bowling's (1995) findings from a random sample of 2000 adults in Great Britain, in response to a generic question about the five most important things in their lives. Respondents were most likely to mention: relationships with family or relatives, followed by their own health, the health of another (close) person and finances /standard of living/ housing. The items contained in the LFS measure were considered to be relevant to homeless people, and to be easily understood.

Criterion Validity

The personal fulfilment scale was found to correlate well with other psychological variables and can therefore be considered to assess aspects of psycho-social well-being, (Baker et al, 1994; Collings, 1990). This is particularly pertinent for this study which centres around a psycho-social health advocacy approach. The material fulfilment has been shown to tap patient's satisfaction with housing and financial status, (Baker et al, 1994) as appropriate to the measurement of the impact of a social intervention. Wallymahmed et al (1996) compared a sample of adults with growth hormone deficiency with a matched control sample (n=64). The growth hormone deficient group score significantly higher than the control group on personal and material fulfilment indicating poorer life satisfaction ($p<.001$), for a group of people with problems related to short stature.

Construct Validity

Baker et al (1994) assessed construct validity by examining the relationship between the life fulfilment scale and other previously validated measures of well-being in a sample of patients with chronic epilepsy. The hypothesis was that patients with a lower discrepancy between their actual and ideal score (indicating greater fulfilment) would have a better profile on measures of psychological well being than those with high discrepancy scores. If, say, psychological well being is linked with the measured life fulfilment then one would expect these measures to show a moderate correlation with the LFS. If the correlation was too high >0.8 this would imply that the LFS was measuring depression or anxiety rather than quality of life, while a very weak correlation <0.2 would suggest that the measure was invalid.

The total discrepancy score for personal fulfilment was significantly correlated with all the other scales. High correlations (0.6 - 0.8) were noted between the Depression Scale and the Perceived Quality of Life scale (PQOL), which has been used on homeless populations (eg Steiner et al, 1995). This sub-scale also correlated to an adequate degree ® >.2 <.4) with other psychological scales (affect balance, anxiety, self-esteem and mastery) (Baker et al, 1994).

Wallymahmed et al (1996) also conducted a similar analysis comparing a number of measures with the LFS: the NHP, Hospital Anxiety and Depression Scale, the Self-Esteem Scale and Mental Fatigue Scale. The total discrepancy score for personal fulfilment was shown to correlate significantly ($p<.05$) with measures of depression ($r=0.40$), mental fatigue ($r=0.46$), emotional reaction ($r=0.56$) and social isolation ($r=0.55$). No correlation was found between the questions from the personal Life Fulfilment Scale and measures of physical well-being (pain and mobility) which suggests that this scale may be most useful in assessing psychological well-being.

The Life Fulfilment Scale: Reliability

Internal consistency

The reliability of the scale was investigated (Baker et al, 1994) by assessing internal consistency (Cronbach,1951). This is the extent to which all of the items measure the same dimension. The tests assess the extent to which individual items are correlated with each other and with overall scale scores. Cronbach's alpha is based on the average correlation between items included in the instrument. The internal consistency is only relevant to measures containing items related to a single dimension. For a clinical measure an alpha score of 0.7 is generally considered to be acceptable, whilst scores of greater than 0.6 may be used for research purposes (Sonquist and Dunkelberg, 1977). However the individual items are included in the instrument because they are measuring slightly different facets of the patient's life fulfilment, and therefore would not be expected to be perfectly correlated. Baker et al (1994) found that the assessment of the "personal" and "material" Sub-scales separately showed them to possess acceptable levels of reliability; $r=.7$ and $r=.8$ respectively. The personal fulfilment scale correlated well with other psychological variables and can therefore be considered to assess aspects of psycho-social well-being. The material fulfilment scale clearly tapped patient's satisfaction with housing and financial status and was not correlated with psychological measures.

Test-retest reliability

The reliability of the LFS was assessed by Wallymahmed et al (1996) by asking adults with growth hormone deficiency to complete the scale on two separate occasions 2-3 weeks apart and consistency over time was determined using Pearson's correlation coefficient. The scales tested had re-test correlations of above 0.70 (0.70-0.92). This level of reliability is acceptable for clinical trials (Nunnally, 1978).

Sensitivity to change

The nature of the "discrepancy" methodology implies sensitivity to change, assuming that the gap between hopes and expectation and what actually happens can be narrowed. Analysis of the LFS item scores allows one to identify which items are responsible for the change. The sensitivity to change of the LFS was confirmed in a double-blind crossover drug study for patients with intractable epilepsy (Baker, 1992). The instrument has not been used to measure change in any published studies although it is being used in a double blind placebo controlled study of growth hormone treatment (Wallymahmed et al, 1996), the results of which have not yet been published. Furthermore, as the LFS is a relatively new measure, no benchmarks have been set as to what constitutes a meaningful change. So although changes in the LFS scores may reflect sensitivity, the relative magnitude of the change may require more detailed analysis and the use of effect sizes (see below) should aid interpretation.

Global Quality of Life: Delighted-Terrible Faces Scale (Appendix V)

For this measure, respondents are asked a single question about overall quality of life, based on the Delighted-Terrible Faces Scale (Andrews and Withey, 1976). Respondents are given seven diagrammatic faces ranging from wide smiles to turned-down mouths, and asked to choose which face shows best how they feel about their life as a whole. The seven faces are given scores from 1 (delighted) to 7 (terrible). A neutral face is also offered so respondents can 'opt out' if none of the faces represent their feelings. Andrews and Withey reported in detail good reliability and validity. The scale has been adapted for use in a number of studies, particularly in the field of mental health, and in some studies involving homeless subjects (Solarz, 1986; Lehman et al, 1997; Braucht et al, 1995; Steiner et al, 1995) (see table 3.2 in chapter 3).

Health Service Utilisation and Process Measures

Many writers on the subject of health and homelessness have highlighted the increased workload associated with homeless clients (Balazs, 1993; Victor, 1992; Sheffield Health, 1995). Health service utilisation was measured for all clients recruited to the study. Case note data were collected over the 3 years of the project (including the 3 month period following the final intake at 31.12.95). The variables measured pertaining to the health centre staff (other than the health advocate) are shown in Box 4.4. These measures had been piloted in the same health centre on a sample of new patients in 1990-91 and 1992 (Princes Park Health Centre, 1992).

Box 4.4 Health centre utilisation variables

- Number of appointments with the GPS
- Number of visits/ appointments with the practice nurse
- Number of night/ home visits made
- Number of times the patient did not attend an appointment
- Number of attendances at the accident & emergency department, recorded in medical notes
- Number of referrals to secondary health care / social services
- Number of letters written and telephone calls made
- Number of investigations performed eg blood tests, urine test and x-rays
- Number of different medications prescribed within 3 months
- Length of time registered at the health centre

As shown in the previous chapter, collecting detailed implementation data per client can permit a sensitive outcome assessment, especially if there is considerable variability in the intensity of services received by individuals.

The health advocate recorded all her contacts, interventions and outcomes in the medical notes alongside entries by the general practitioners and practice nurses. This too was helpful for the doctors. Box 4.5 provides a list of process variables measuring the workload of the health advocate.

It was important to measure the amount of input from the health advocate, to measure 'congruity' (Sidani and Braden, 1998) and assess whether observed changes in health status and life fulfilment are associated with (and congruent) the nature and strength of the intervention. Large changes in the outcomes should not be attributed to a weak treatment (unless the health advocate refers to other powerful agencies). The measurement of level of support is similar to Shlay and Holupka's (1992) service delivery index where participation in a Family Development Centre was measured from high (7) to low (0) where the highest score indicates the maximum level of participation possible and zero indicates no participation at all.

Box 4.5 Process variables pertaining to the health advocacy intervention

- Number of contacts with the health advocate initiated by patient
- Number of contacts with the health advocate and initiated by the health advocate
- Number of referrals to other agencies made by the health advocate
- Number of telephone calls made on behalf of patient
- Number of letters written on behalf of patient
- Number of meetings attended
- Number of case conferences attended
- Rating of how much support the health advocate has given the patient (single highest applicable category is used):

  1 Registration only
  2 Registration and health check only
  3 1 or 2 additional contacts
  4 3 > 6 contacts
  5 6 or more contacts

Statistical analysis

The SPSS (version 7) package of statistical software was used to manage and analyse the data (SPSS, 1995). A conservative approach was adopted for the data analysis. An "intention to treat" analysis was used: all randomised patients were included in the original experimental groups irrespective of whether they received their allocated treatment. This is particularly important for the 'unplanned referral' group who are analysed as part of the control group. The analysis will also take account of the different recruitment methods, i.e., mode of registration of the intervention group (see earlier). Significance will be set at the conventional level of 5% and where possible p values will be supplemented with confidence intervals. Only results which reach statistical significance will be reported in the footnotes of tables.

a) Baseline equivalence

The assumption of baseline equivalence was tested by comparing the intervention and control groups on demographic and lifestyle characteristics, and quality of life and health status measures. Analysis of variance and chi squared tests were used for these comparisons.

b) Representativeness

The assumption that the follow up sample was representative of the overall sample was tested in a number of ways. First, the baseline demographic and lifestyle characteristics were compared using two tailed t-tests and chi squared tests. Second, the same analysis, the baseline quality of life and health status measures of those who left the study and those who were followed up at 3 months were compared using chi squared tests (with continuity correction for two by two tables) for categorical variables and two tailed t-tests[8].

c) Differences in outcomes (bivariate)

Data analyses were designed to examine differences between the intervention groups and the control group on service utilisation, housing and quality of life outcomes after

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[8] Where data is not normally distributed data is transformed, and the methods used are described where appropriate.

the 3 month follow up period. Chi squared analysis was used for categorical variables and one-way analysis of variance for continuous variables[9].

Secondary analysis has also been completed on those individuals within the research groups who actually received the form of care assigned. This can address questions about whether this form of care can work in ideal circumstances, as opposed to questions about whether this form of care does work in typical circumstances. For service utilisation analysis, this entails selecting only those who attended the health centre for a consultation as opposed to the total sample who were registered as patients at the practice.

Change scores (difference between baseline score and follow-up score) have been used as the principal patient-based outcomes in this study for the purposes of measuring the effectiveness of the health advocacy approach. See Appendix V for notes on interpreting change scores in the Life Fulfilment Scale.

Effect sizes

The occurrence of a 'statistically significant' result (at say the 5% level) provides no information about the strength or importance of an effect; at worst it can be misleading. In the present study effect sizes (discussed in chapter two) are used to support the interpretation of significance testing. An effect size is a statistic for describing the difference between scores gained at two different times in relation to the distribution of scores. This statistic has been recommended by Kazis et al. (1989) as a method of evaluating the sensitivity of health measurement instruments to change that is clinically important. For two group comparisons, the effect size (ES) is calculated by dividing the mean change score of the intervention group minus the mean change score of the control group, by the standard deviation of the control group at baseline (Smith and Glass, 1977). This can be represented mathematically:

$$\text{ES} = \frac{\text{mean change}_I - \text{mean change}_C}{\text{standard deviation}_C}$$

where I = intervention group
and C = control group

An effect size represents a standardised measure of change in a group and can be used to translate changes in health status into a standard unit of measurement that provides a clearer interpretation of results. Effect sizes can be compared for different measures and in different circumstances.

Interpreting change in clinical terms

There is no widely accepted notion of what represents a clinically meaningful change in health status. Researchers and clinicians have difficulty interpreting a change of say 3 units on a 0 to 12 health status scale. Changes that are statistically significant over time may not necessarily be synonymous with clinically significant change. On the other hand variation between individuals may mean that what may be clinically important may not be statistically significant. Effect sizes are useful in these circumstances; difficulties remain when only the raw score and a p value are available. Lydick and Epstein (1993) identified effect sizes as the most commonly cited of the distribution-based interpretations of change scores. Cohen (1977) defined an effect size of 0.20 as 'small', one of 0.40 as 'moderate', and one of 0.80 or greater as 'large'. An effect size of 0.2 represents a change of one standard deviation of the baseline measure. Kazis (1989) however, argues against such generalisation, suggesting that gradations must be determined for individual health status instruments, with reference to the extent of clinical change expected. Kazis notes that the maximum effect size for a particular measure can be described as the inverse of the coefficient of variation, where the mean value of a scale at baseline is divided by its standard deviation (also at baseline). This is the largest possible effect size for a non-negative measure. Each observed effect size can then be interpreted in the context of this maximum effect size. The use of effect sizes within the present study follows this more stringent method , which provides a conservative estimate of change in quality of life.

d) Differences in outcomes (multivariate)

The main effects demonstrated in bivariate comparisons are later verified by means of multivariate analysis. Multiple bivariate analysis does not take into account the relationship between the explanatory variables and as a result can provide a misleading picture of the relationships in the data. To improve the precision of estimates of the effects of the intervention, multiple regression was used to investigate certain relationships in the data whilst controlling for other variables. The aim is to derive models which contain only those variables which are important for predicting levels of the response variable. Theoretical and practical considerations are used to select the 'best' model rather than purely statistical criteria. A combination of forward and backward stepwise regression was used; the variables chosen for inclusion in the final models were those that made the largest extra contribution to the explained variation.

e) Reliability and validity of measures

This is reported at the end of the results section. The reliability of each instrument was examined by assessing its internal consistency; the extent to which all of the items within instruments measure the same dimension. This was measured using Cronbach's alpha (Cronbach, 1951) and is based on the average correlation between items included in the instrument.

Correlations between scores on different sections of the NHP, the LFS and Faces Scale were calculated to compare the information provided by the three measures. Pearson's r was used as a measure of linear association, in that it assesses the extent to which higher scores on one variable are related to higher scores on another variable. The correlation between change scores will also be assessed, to measure the instruments' responsiveness to change in accordance with Bowling's (1998 p12) suggestion to correlate change scores with other measures which reflect anticipated changes.

Summary

The existing primary health care team at Princes Park Health Centre was enhanced during the project by the employment of a designated non-medical health advocate. The health advocate's role was to assist the whole practice team to meet the needs of a transitory group of homeless individuals and families, without impairing its capacity to provide primary care for the existing 10,000 permanent patients. The impact of a health advocacy intervention is tested using a quasi-randomised controlled design. Patients were sequentially allocated to intervention or 'usual care' groups in alternating periods of 1-3 months over a total intake phase of 3 years. Registration with the health centre took place either by 'self registration' (available to both intervention and control groups) or by 'outreach registration' (available to the intervention group only). Patient data were gathered in areas of demography, quality of life, health status, housing status and primary health care utilisation. Health related quality of life measured by the Nottingham Health Profile (Hunt et al, 1986), the Life Fulfilment Scale (Baker et al, 1994) and the Faces Scale (Andrews and Withey, 1976) and objective service utilisation were the main outcome measures used in this study; questionnaires were administered on two occasions for homeless individuals: at registration and at 3 months. The health related quality of life measures have been shown to be valid and reliable. It was considered that within the circumstances of everyday primary care and methodological constraints, these indicators would together provide a reasonable measure of effectiveness of the Family Health Project.

5

RESULTS: CHARACTERISTICS OF POPULATION UNDER STUDY

SOCIO- DEMOGRAPHIC PROFILE OF HOMELESS ADULTS IN THE STUDY

The sample consisted of 400 adults (16 years or older) and 438 children who were living temporary accommodation and registered with the health centre. The results of adults and children will be outlined separately.

The following socio-demographic information was drawn from the temporary registration questionnaire (Appendix II). Table 5.1 serves two functions. First it provides a frame of reference for describing the overall adult population under study (final column) and second, it summarises the comparability of the research groups at baseline.

Seventy six percent of the adult homeless sample were female which is consistent with national trends (DoE, 1996; Victor, 1996) and housing priority status. Seventy three percent were under 30 years. The ages of adults in the sample ranged from 16 to 71 years, with a mean age of 26.6 years (sd = 8.6). Sixty three percent of the sample were temporarily housed at either one of the women's refuges or Liverpool City Council family hostels. Less than 15% of this population were temporarily housed in B&B accommodation. Of these 50% were registered with the practice by the health advocate's outreach service. 90% of patients in B&B accommodation registered with PPHC in the first year of the project. Early in 1994 Liverpool City Council Housing Directorate stopped using B&B and hotel accommodation to temporarily house homeless people. This mirrors a national trend (Burns and Smith, 1994). There was a slight decline in registrations in the final recruitment year (see also fig. 1.2 chapter 1).

Only 55 patients (16%) were from ethnic minorities; 20 individuals Black British, 10 were Somalian and 8 were Irish. This compares to 40% of individuals from ethnic minority groups in a sample of new patients who registered permanently with PPHC in 1992 (Princes Park Health Centre, 1992). This difference between the homeless and permanent population, may be due to the fact that homeless people are generally housed from other areas of Liverpool, where there may be fewer individuals from ethnic minority groups.

Table 5.1: Baseline socio-demographic characteristics of homeless adults (n=400)

		GROUP						TOTAL ADULTS (n=400)	
		CONTROL GROUP (n=149)		INTERVENTION GROUP (self reg) (n=96)		INTERVENTION GROUP (FHW reg) (n=155)			
		n	%	n	%	n	%	n	%
GENDER	Male	43	28.9%	20	20.8%	34	21.9%	97	24.3%
	Female	106	71.1%	76	79.2%	121	78.1%	303	75.8%
AGE [a]	16 - 30 years	99	66.4%	60	62.5%	132	85.2%	291	72.8%
	30 years or more	50	33.6%	36	37.5%	23	14.8%	109	27.3%
TEMPORARY ACCOMMODATION [b]	Womens Refuges	68	45.6%	31	32.3%	55	35.5%	154	38.5%
	Family Hostels	31	20.8%	25	26.0%	51	32.9%	107	26.8%
	Hotels and B&Bs	12	8.1%	17	17.7%	29	18.7%	58	14.5%
	Other hostels	38	25.5%	23	24.0%	20	12.9%	81	20.3%
ETHNIC GROUP	White British	100	82.0%	62	82.7%	131	86.8%	293	84.2%
	Black British	9	7.4%	6	8.0%	5	3.3%	20	5.7%
	Other ethnic groups	13	10.7%	7	9.3%	15	9.9%	35	10.1%
MARITAL STATUS [c]	Single	44	51.2%	44	67.7%	79	63.7%	167	60.7%
	Married /with permenant partner	10	11.6%	10	15.4%	23	18.5%	43	15.6%
	Divorced /separated	32	37.2%	11	16.9%	22	17.7%	65	23.6%
WHO THE PATIENT LIVES WITH	Alone	39	32.2%	22	30.1%	27	18.2%	88	25.7%
	With partner	5	4.1%	3	4.1%	14	9.5%	22	6.4%
	With partner and children	19	15.7%	16	21.9%	33	22.3%	68	19.9%
	With children	58	47.9%	32	43.8%	74	50.0%	164	48.0%
LONG TERM ILLNESS /DISABILITY		53	43.8%	31	42.5%	53	36.3%	137	40.3%

Significant differences between groups

/table continued

[a] Chi square test = 20.121 df 2 p=0.000

[b] Chi square test = 21.139 df 6 p=0.002

[c] Chi square test = 13.320 df 4 p=.010

Table 5.1(continued): Baseline socio-demographic characteristics of homeless adults (n=400)

		GROUP						TOTAL ADULTS (n=400)	
		CONTROL GROUP (n=149)		INTERVENTION GROUP (self reg) (n=96)		INTERVENTION GROUP (FHW reg) (n=155)			
		n	%	n	%	n	%	n	%
YEAR REGISTERED	1993	43	28.9%	40	41.7%	60	38.7%	143	35.8%
	1994	54	36.2%	34	35.4%	55	35.5%	143	35.8%
	1995	52	34.9%	22	22.9%	40	25.8%	114	28.5%
LENGTH OF TIME SINCE HOUSING PROBLEMS	1 month or less	37	37.0%	27	39.7%	67	50.4%	131	43.5%
	1 - 3 months	24	24.0%	13	19.1%	26	19.5%	63	20.9%
	3 - 6 months	9	9.0%	5	7.4%	13	9.8%	27	9.0%
	6 - 12 months	16	16.0%	6	8.8%	8	6.0%	30	10.0%
	12 months or more	14	14.0%	17	25.0%	19	14.3%	50	16.6%
REASON FOR HOMELESSNESS [a]	Domestic violence	54	55.1%	25	46.3%	55	49.5%	134	51.0%
	Other health /social reasons	19	19.4%	14	25.9%	11	9.9%	44	16.7%
	Relatives /friends unwilling /unable to accommodate	10	10.2%	6	11.1%	19	17.1%	35	13.3%
	Harrassment /crime	8	8.2%	5	9.3%	21	18.9%	34	12.9%
	Refugee	5	5.1%	3	5.6%	1	.9%	9	3.4%
	Loss of previous tenancy	2	2.0%	1	1.9%	4	3.6%	7	2.7%
EMPLOYMENT STATUS	Unemployed	81	66.9%	46	62.2%	88	59.5%	215	62.7%
	Housewife	30	24.8%	22	29.7%	45	30.4%	97	28.3%
	Longterm sickness / medically retired	5	4.1%	1	1.4%	7	4.7%	13	3.8%
	Student /training scheme	3	2.5%	4	5.4%	4	2.7%	11	3.2%
	Employed	2	1.7%	1	1.4%	4	2.7%	7	2.0%
CONTACT WITH OTHER AGENCIES	No contact	57	47.9%	27	37.0%	76	51.0%	160	46.9%
	Social worker	29	24.4%	28	38.4%	37	24.8%	94	27.6%
	Health visitor	12	10.1%	7	9.6%	20	13.4%	39	11.4%
	Both social worker and health visitor	9	7.6%	5	6.8%	9	6.0%	23	6.7%
	Other agency	12	10.1%	6	8.2%	7	4.7%	25	7.3%

Significant differences between groups

[a] Chi square = 18.547 df 10 p=0.046

61% of the sample considered themselves single and of these, 27% lived with a partner. Overall a quarter (26%) lived with their partner or their partner and children. Two thirds (68%) of households consisted of families with children compared to 31% nationally; 48% were lone parents which is far in excess of the national average which is 6.6%

(Central Statistical Office, 1996) but consistent with other temporary homeless samples (45%;Victor, 1996). Forty percent of the sample reported a long term illness or disability; this is slightly higher than the national average of 35%, and the average for the North of England (37%) but consistent with statistics for unemployed adults and females in the North of England (40%) (Office for National Statistics, 1996).

Almost two thirds (64%) of the sample had been homeless for less than 3 months before recruitment to the study. Seventeen percent had housing problems or were homeless for greater than 1 year before registering with PPHC.

The most frequently cited reason for this episode of homelessness was domestic violence. This corresponds with the most frequently used form of temporary accommodation; women's refuges.

Sixty seven percent of the homeless sample described themselves as unemployed, compared to 41% of the general population in the Granby area (Office of Population Censuses and Surveys, 1992). Only 2% of this sample were working. A large proportion were female single parents who tended to classify themselves as housewives (28%) or unemployed (63%).

Most people were relatively new to the area yet over half (54%) had some contact with another agency. However, much of this contact was with agencies in a different area. 28% were in contact with a social worker and 7% of those asked were in contact with more than one of the listed agencies.

Table 5.2 describes four health related behaviours: smoking, consuming alcohol, using drugs and diet. Respondents were asked to describe their diet in terms of one of three categories. Almost half respondents (47.5%) reported their diet to be inadequate or detrimental to their health. This is consistent with another study conducted in Liverpool which revealed that homeless households had a dietary intake significantly inferior to the Dietary Reference Values (Coufopoulos and Stitt, 1996).

Eighty one per cent of all adults smoked. This was almost twice as high as the PPHC population where 44% of adults were current smokers (Princes Park Health Centre, 1992). Reported alcohol consumption was much lower amongst this population: only 19% of adults drank regularly. Similar findings have been found elsewhere (Victor, 1992). Twelve per cent of adults used street drugs regularly and a further 9% used drugs infrequently.

Table 5.2: Health related behaviourin homeless adults (n=400)

		GROUP						TOTAL ADULTS (n=400)	
		CONTROL GROUP (n=149)		INTERVENTION GROUP (self registered) (n=96)		INTERVENTION GROUP (FHW registered) (n=155)			
		n	%	n	%	n	%	n	%
DIET	Adequate diet	67	58.3%	36	49.3%	71	49.7%	174	52.6%
	Inadequate diet	20	17.4%	21	28.8%	45	31.5%	86	26.0%
	Diet detrimental to health	28	24.3%	16	21.9%	27	18.9%	71	21.5%
SMOKING STATUS	Does not smoke	29	24.2%	11	16.2%	21	15.1%	61	18.7%
	Trivial smoker <1 per day	1	.8%	2	2.9%	-	-	3	.9%
	Light smoker 1-9 per day	16	13.3%	8	11.8%	22	15.8%	46	14.1%
	Moderate smoker 10-19 per day	35	29.2%	20	29.4%	45	32.4%	100	30.6%
	Heavy smoker 20-39 per day	28	23.3%	16	23.5%	39	28.1%	83	25.4%
	Very heavy smoker 40+ per day	11	9.2%	11	16.2%	12	8.6%	34	10.4%
ALCOHOL CONSUMPTION	Does not drink alcohol	60	51.3%	31	50.0%	38	30.4%	129	42.4%
	Drinks occasionally but rarely gets the chance	39	33.3%	18	29.0%	60	48.0%	117	38.5%
	Trivial drinker <1 u/ per day	4	3.4%	4	6.5%	7	5.6%	15	4.9%
	Light drinker 1-2 u/ per day	8	6.8%	3	4.8%	9	7.2%	20	6.6%
	Moderate drinker 3-6 u/ per day	6	5.1%	3	4.8%	8	6.4%	17	5.6%
	Heavy drinker 7-9 u/ per day	-	-	2	3.2%	2	1.6%	4	1.3%
	Very heavy drinker 9+ u/ per day	-	-	1	1.6%	1	.8%	2	.7%
USE OF STREET DRUGS	Never used street drugs	83	70.3%	46	71.9%	95	71.4%	224	71.1%
	Past use of street drugs	10	8.5%	5	7.8%	10	7.5%	25	7.9%
	Present use of street drugs - infrequently	14	11.9%	3	4.7%	11	8.3%	28	8.9%
	Present use of street drugs - frequently	11	9.3%	10	15.6%	17	12.8%	38	12.1%

No significant differences between groups

Homeless adults: baseline comparability between research groups

The second purpose of Tables 5.1 and 5.2 is to establish the comparability of the research groups at registration. A greater proportion of homeless people were recruited to one of the intervention groups: 96 adults registered themselves with PPHC in an intervention phase (self registered intervention group) and 155 were proactively registered by the health advocate, compared to 149 registrations in the control group. Of the 149 adults in the control group 12 (8%) were referred to the experimental intervention (unplanned referrals: see Chapter 4).

By definition, the intervention group registered by the health advocate have not attended the health centre requesting health care - although their need for health care may be uncovered by the health advocate. It is important to note that statistically significant differences were found between the groups in four of the sixteen areas, namely age (p<.001), type of accommodation (p<.001), marital status (p<.01) and reason for homelessness (p<.05). The intervention group registered by the health advocate tended to be younger (mean age 24.9 years compared to 27.6 years for the control group and 28.0 years for the self registered intervention group) and were more frequently living in a family hostel. This is reflected in the reasons for homelessness, as this group were more likely to be homeless due to family or friends being unwilling or unable to house them or due crime /harassment at their previous tenancy. A greater proportion of the control group were divorced or separated.

The difference between groups in marital status is not likely to be problematic as many people described themselves as single even though they were separated from their partner; it is likely to be more important, in terms of influencing outcomes, that there were similar proportions who were married or not married. Living situation is more likely to be an important descriptive variable in terms of influencing patient outcome and is comparable between the three research groups. The age difference is not considered problematic with only a mean difference of 2.7 years (upper CI 5.1; lower CI 0.4 yrs) when compared to the control group and 3.1 years (upper CI 5.8; lower CI 0.5 yrs) when compared to the self registered intervention group (F=5.55 df 397 p=.004).

The differences found in temporary accommodation and reason for homelessness indicate that patient recruitment may have influenced the allocation of patients to the groups in this study. This means that when comparing workload and patient outcomes for members of these three groups we may not be comparing "like with like".

There were however, no important differences between the self-registered patients in the intervention group and the control group. **"Like with like" comparisons should therefore, ideally, be based on these patients.**

HEALTH RELATED QUALITY OF LIFE OF HOMELESS ADULTS IN TEMPORARY ACCOMMODATION

In this section a profile of the subjective health status, life fulfilment and overall quality of life of the full baseline sample will be provided. This section also provides a basis for comparison with other homeless populations and the results are presented, as far as possible in a comparable format to previous studies using the same outcome measures. The sample who completed quality of life assessments (n=222) are representative of the full sample of 400 homeless adults on all the demographic variables.

The Nottingham Health Profile

Table 5.3 shows the proportion of this sample affirming each of the thirty eight items, providing an indication of the high level of distress experienced by this homeless sample. Levels of morbidity are judged by positive responses to the thirty eight items which constitute the six dimensions of the NHP. Table 5.4 shows the 10 most reported NHP problems.

TABLE 5.3: Nottingham Health Profile: % of homeless population (n=222) affirming each item at baseline

		NHP WEIGHTING[a]	%
ENERGY	TIRED ALL THE TIME	39.2	47.1
	EVERYTHING IS AN EFFORT	36.8	25.6
	SOON LOSES ENERGY	24.0	46.9
EMOTIONAL REACTIONS	THINGS ARE GETTING HER DOWN	10.5	71.7
	HAS FORGOTTEN HOW TO ENJOY HERSELF	9.3	61.4
	FEELING ON EDGE	7.2	62.6
	THE DAYS DRAG	7.1	62.1
	LOSES TEMPER EASILY	9.8	61.8
	THINKS SHE IS LOSING CONTROL	14.0	34.8
	WORRY KEEPS HER AWAKE	14.0	60.9
	FEELS THAT LIFE IS NOT WORTH LIVING	16.2	27.1
	WAKES UP DEPRESSED	12.0	52.2
	HAS PAIN AT NIGHT	12.9	17.6
	HAS UNBEARABLE PAIN	19.7	12.1
	PAINFUL TO CHANGE POSITION	10.0	13.2
	HAS PAIN WHEN WALKS	11.2	14.6
	HAS PAIN WHEN STANDING	9.0	14.0
	IS IN CONSTANT PAIN	20.9	8.7
	HAS PAIN WHEN USING STAIRS OR STEPS	5.8	11.1
	HAS PAIN WHEN SITTING	10.5	10.1
SLEEP	NEEDS TABLETS TO SLEEP	22.4	17.4
	WAKES UP EARLY	12.6	66.2
	LIES AWAKE FOR MOST OF THE NIGHT	27.3	58.5
	TAKES A LONG TIME TO GET TO SLEEP	16.1	70.5
	SLEEPS BADLY AT NIGHT	21.7	56.5
SOCIAL ISOLATION	FEELS LONELY	22.0	47.3
	FINDS IT HARD TO MAKE CONTACT WITH PEOPLE	19.4	25.6
	FEELS THERE IS NOBODY SHE IS CLOSE TO	20.1	42.0
	FEELS SHE IS A BURDEN TO OTHERS	22.5	32.0
	FINDS IT HARD TO GET ON WITH OTHERS	16.0	22.7
PHYSICAL MOBILITY	CAN ONLY WALK ABOUT INDOORS	11.5	6.3
	HARD TO BEND	10.6	13.0
	IS UNABLE TO WALK AT ALL	21.3	1.4
	FINDS GETTING UP & DOWN STAIRS OR STEPS DIFFICULT	10.8	15.0
	FINDS IT HARD TO REACH FOR THINGS	9.3	7.8
	FINDS IT HARD TO DRESS	12.6	4.3
	FINDS IT HARD TO STAND FOR LONG	11.2	22.2
	NEEDS HELP TO WALK OUTSIDE (WALKING AID OR SOMEONE)	12.7	4.9

[a] Each of the 38 NHP items are weighted using Thurstone's Method of Paired Comparisons

Table 5.4: The 10 most reported Nottingham Health Profile problems in the present study (n=222)

Items	%
Things are getting her down	71.7
Takes a long time to get to sleep	70.5
Wakes up early	66.2
Feeling on edge	62.6
The days drag	62.1
Loses temper easily	61.8
Has forgotten how to enjoy herself	61.4
Worry keeps her awake	60.9
Lies awake for most of the night	58.5
Sleeps badly at night	56.5

The NHP results can be compared with standard scores computed from reference values according to age, sex and social class (Hunt and McKenna, 1991). The NHP scores for homeless individuals in the present study are compared to other homeless samples and a comparative normative population weighted to match age, sex and social class (V) (table 5.5).

Table 5.5: Mean Nottingham Health Profile scores compared to other homeless populations and reference values

	Present study (n=222)	Homeless families in Manchester (Pickin and Ramsell, 1990)* (n=85)	Single homeless in Sheffield (George et al, 1991)* (n=340)	NHP reference values (Hunt & McKenna, 1992) (n=6506)
Emotional distress	52.8	32.1	32.4	16.7
Social isolation	34.7	22.6	30.1	6.9
Sleep	51.8	27.3	31.1	21.6
Lack of energy	39.2	33.2	27.2	15.4
Pain	12.4	11.0	11.6	4.7
Physical mobility	8.0	6.4	8.7	3.7

* no standard deviations published.

The normative data produced by Hunt and McKenna (1991) showed that individuals from lower socio-economic groups tend to score higher on the sleep, energy and emotional reactions dimensions. Women also tended to score more highly than men on all dimensions. The reference values in Table 5.5 are heavily weighted towards these groups. Despite this, the mean scores for individuals in the current study are vastly higher than the weighted normative data[1]. The Manchester homeless families sample[2] were the closest in severity but still were not as distressed as the individuals in this study as measured by the NHP six domains, despite being a similar population ie predominantly single mothers living in temporary accommodation in the Northern metropolitan city of Manchester.

Table 5.6 shows the percentage of respondents in the present study who report one or more problems in the six NHP dimensions. Again this group score higher than a predominantly male (86%) single homeless population in Sheffield and a comparative deprived London population (Curtis, 1985).

Table 5.6: Percentage of responders reporting problems (non-zero NHP score)

	Present study (n=222)	Single homeless in Sheffield (George et al, 1991) (n=340)	Comparison population (Curtis, 1985; results cited in George et al, 1991)
Emotional distress	93	71	31
Social isolation	67	63	13
Sleep	85	65	30
Lack of energy	64	49	27
Pain	40	37	16
Physical mobility	36	38	18

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[1] Statistical testing could not be carried out on any of the comparison groups as standard deviations are unpublished.

[2] The number in sample is unpublished.

Life Fulfilment Scale

The baseline score on the Life Fulfilment Scale (LFS) and the Faces Scale are shown in table 5.7 to 5.11. Table 5.7 shows that the baseline mean importance levels lie between fairly important (score 3) and very important (score 4) for all items. Table 5.8 shows that all items except marriage and job, baseline satisfaction levels mostly lie between dissatisfied and satisfied. The mean satisfaction with the relationship item is reduced due to a high proportion (37 %) of respondents who rated the item 'does not apply' and therefore score zero. Likewise, the mean satisfaction with the job item is also reduced due to 87% of individuals responding with 'does not apply'.

The discrepancy scores for each item (see Appendix V for method of scoring) are presented in table 5.9. A high score denotes low fulfilment, ie a larger gap between the importance attached to an item compared to the satisfaction attained in this item and a low score denotes higher fulfilment, ie, a smaller gap. The highest possible score for each item is 12 and the lowest is 0. Most items indicate lower fulfilment in this population. The discrepancy sub scores and overall score in table 5.10 show a similar picture of low life fulfilment, in personal and material aspects.

Table 5.7: Life Fulfilment Scale: Mean item importance scores of homeless (n=222) at baseline

	Mean	Std. Deviation	95% Confidence Interval for Mean	
			Lower Bound	Upper Bound
A good family life	3.79	.57	3.72	3.87
Having close friends	3.50	.72	3.40	3.59
A happy marriage	3.46	.91	3.34	3.58
Spare time activities	3.41	.68	3.32	3.50
Being in good health	3.86	.43	3.80	3.92
Being happy with yourself	3.68	.60	3.60	3.76
A secure job and stable job	3.15	.89	3.03	3.26
Being happy where you live	3.65	.60	3.56	3.73
Housing that meets your needs	3.77	.48	3.70	3.83
Having enough money	3.39	.70	3.30	3.49

4 = very important
3 = fairly important
2 = not very important
1 = not at all important

Table 5.8: Life Fulfilment Scale: Mean item satisfaction scores of homeless (n=222) at baseline

	Mean	Std. Deviation	95% Confidence Interval for Mean	
			Lower Bound	Upper Bound
A good family life	2.41	1.06	2.27	2.55
Having close friends	2.84	.94	2.71	2.96
A happy marriage	1.62	1.58	1.41	1.83
Spare time activities	2.53	.89	2.42	2.65
Being in good health	2.27	.80	2.17	2.38
Being happy with yourself	2.32	.91	2.20	2.45
A secure job and stable job	.29	.83	.18	.40
Being happy where you live	2.48	.92	2.36	2.60
Housing that meets your needs	2.46	.95	2.33	2.59
Having enough money	2.05	.85	1.94	2.17

4 = very satisfied
3 = satisfied
2 = dissatisfied
1 = very dissatisfied
0 = does not apply (marriage & job item)

Table 5.9: Life Fulfilment Scale: Mean item discrepancy scores of homeless (n=222) at baseline

	Mean	Std. Deviation	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound
A good family life	5.9909	4.1041	5.4443	6.5375
Having close friends	3.9315	3.3905	3.4800	4.3831
A happy marriage	3.0457	4.2022	2.4860	3.6053
Spare time activities	4.8767	3.1678	4.4548	5.2986
Being in good health	6.6621	3.1731	6.2395	7.0847
Being happy with yourself	6.1416	3.5701	5.6661	6.6170
A secure job and stable job	.7991	2.5116	.4646	1.1336
Being happy where you live	5.5907	3.6583	5.0989	6.0825
Housing that meets your needs	5.8111	3.6976	5.3163	6.3058
Having enough money	6.6895	3.4274	6.2330	7.1460

A high score denotes low fulfilment.
The highest possible score for each item is 12 and the lowest is 0.

Table 5.10: Life Fulfilment Scale: Mean discrepancy sub and overall scores of (n=222) at baseline

	Mean	Std. Deviation	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound
LFS PERSONAL SUBSCALE	30.6484	13.6122	28.8355	32.4613
LFS MATERIAL SUBSCALE	18.1488	7.8845	17.0889	19.2087
BASELINE OVERALL LFS SCORE	49.5628	17.7217	47.1805	51.9451

A high score denotes low fulfilment.

Faces Scale

Table 5.11: Faces Scale: Mean rating of homeless (n=222) at baseline

			95% Confidence Interval for Mean	
	Mean	Std. Deviation	Lower Bound	Upper Bound
Delighted-terrible faces scale	4.12	1.75	3.88	4.36

The faces (see appendix V) denoted as
1= delighted or extremely pleased
2= pleased
3= mostly satisfied
4= mixed
5= mostly dissatisfied
6= unhappy
7= terrible

Subjects were also asked a global question about how they felt about their life as a whole (see Appendix V). At intake to the study the mean score was 4.1 (the middle face, with no expression) indicating that participants felt between mixed and mostly dissatisfied as a whole; 39% of respondents rated themselves on the 'terrible' end of the scale (face 5, 6 or 7). The results were comparable to Solarz (1986)(see chapter 3 table 3.3) who, also used this delighted-terrible scale on a homeless population in temporary shelter in Michigan, USA (mean score 4.3; sd 1.4 compared to 3.9 in this study when coding is reversed to 1=terrible, 7=delighted etc) and Lehman et al (1995) who sampled mentally ill homeless in Baltimore, USA (mean score 3.97).

Conclusion

Adults in the study presented to the study with very low levels of health related quality of life. These findings which are consistent with other research into homeless people in temporary accommodation (Solarz, 1986; Pickin and Ramsel, 1990; George et al, 1991; Calsyn and Morse, 1990; Cauce et al, 1994).

SOCIO-DEMOGRAPHIC PROFILE OF HOMELESS CHILDREN IN THE STUDY

A large proportion (67%) of the adult population were families. Table 5.12 displays the number of children in families registered with the health centre (ranged from one to six). The mean number of children per family was 1.9 (median 2, mode 1). There were no statistically significant differences in the number of children registered between research groups. Eighty one percent of children recruited to the study were from single parent families compared to 19.4% nationally (Haskey, 1996).

Table 5.12 Number of children in homeless families recruited to the study

		GROUP						TOTAL	
		CONTROL GROUP		INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW registered)			
		n	%	n	%	n	%	n	%
Number of children (registered at health centre) per family	1.00	32	56.1%	19	48.7%	36	38.7%	87	46.0%
	2.00	17	29.8%	10	25.6%	22	23.7%	49	25.9%
	3.00	8	14.0%	7	17.9%	25	26.9%	40	21.2%
	4.00	-	-	3	7.7%	6	6.5%	9	4.8%
	5.00	-	-	-	-	3	3.2%	3	1.6%
	6.00	-	-	-	-	1	1.1%	1	.5%

Table 5.13 : Socio-demographic characteristics of homeless children (n=438)

		GROUP						TOTAL CHILDREN (n=438)	
		CONTROL GROUP (n=138)		INTERVENTION GROUP (self registered) (n=83)		INTERVENTION GROUP (FHW registered) (n=217)			
		n	%	n	%	n	%	n	%
GENDER[a]	Male	67	48.6%	51	61.4%	86	39.6%	204	46.6%
	Female	71	51.4%	32	38.6%	131	60.4%	234	53.4%
AGE[b]	0 -4 years	88	63.8%	59	71.1%	101	46.5%	248	56.6%
	5 -15 years	50	36.2%	24	28.9%	116	53.5%	190	43.4%
TEMPORARY ACCOMMODATION [c]	Womens Refuges	101	73.2%	49	59.0%	120	55.3%	270	61.6%
	Family Hostels	30	21.7%	22	26.5%	51	23.5%	103	23.5%
	Hotels and B&Bs	7	5.1%	12	14.5%	46	21.2%	65	14.8%
ETHNIC GROUP	White British	89	78.8%	47	72.3%	185	85.3%	321	81.3%
	Black British	12	10.6%	9	13.8%	21	9.7%	42	10.6%
	other	12	10.6%	9	13.8%	11	5.1%	32	8.1%
LONG TERM ILLNESS		33	30.0%	16	25.4%	38	18.5%	87	23.0%

[a] Chi square = 11.798 df 2 p<.003

[b] Chi square = 18 911 df 2 p<.000

[c] Chi square = 19.784 df 4 p<.001

Fifty three percent of homeless children were female, 57% were under five years, the majority (62%) were temporarily accommodated in women's refuges and were white British (82%). About a quarter (23%) had a long term illness or disability. More children were registered in the first year of the study and this reflected Liverpool City Council Housing Department's practice of housing families in hotels and B&Bs and the higher acceptance of homeless application in this year. Like homeless adults children also had usually (54%) not been homeless for more than one month at intake to the study and most (69%) were homeless due domestic violence.

Over half the children in the study did not have any contact with other agencies, whereas around a quarter (27%) had contact with a social worker, 28% had contact with a health visitor and 11% had contact with both.

Table 5.13 (continued): Socio-demographic characteristics of homeless children (n=438)

		GROUP						TOTAL CHILDREN (n=438)	
		CONTROL GROUP (n=138)		INTERVENTION GROUP (self registered) (n=83)		INTERVENTION GROUP (FHW registered) (n=217)			
		n	%	n	%	n	%	n	%
YEAR REGISTERED[a]	1993	32	23.2%	43	51.8%	101	46.5%	176	40.2%
	1994	53	38.4%	25	30.1%	60	27.6%	138	31.5%
	1995	53	38.4%	15	18.1%	56	25.8%	124	28.3%
LENGTH OF TIME SINCE HOUSING PROBLEMS	1 month or less	39	45.3%	36	61.0%	111	56.3%	186	54.4%
	1 - 3 months	18	20.9%	9	15.3%	37	18.8%	64	18.7%
	3 - 6 months	8	9.3%	6	10.2%	13	6.6%	27	7.9%
	6 - 12 months	9	10.5%	1	1.7%	13	6.6%	23	6.7%
	12 months or more	12	14.0%	7	11.9%	23	11.7%	42	12.3%
REASON FOR HOMELESSNESS[b]	Domestic violence	68	79.1%	34	73.9%	94	62.3%	196	69.3%
	Other reasons	18	20.9%	12	26.1%	57	37.7%	87	30.7%
CONTACT WITH OTHER AGENCIES	No contact	52	48.1%	35	55.6%	128	61.8%	215	56.9%
	Social worker	21	19.4%	11	17.5%	25	12.1%	57	15.1%
	Health visitor	21	19.4%	14	22.2%	28	13.5%	63	16.7%
	Both social worker and health visitor	14	13.0%	3	4.8%	26	12.6%	43	11.4%

[a] Chi square = 26.576 df 4 p=.000

[b] Chi square = 7.838 df 2 p=.020

Homeless children: baseline comparability between research groups

As with the adults, greater numbers of homeless children were recruited to one of the intervention groups: 83 children were registered with PPHC by their parents an intervention phase (self registered intervention group) and 217 were proactively registered by the health advocate, compared to 138 registrations in the control group. Of the 138 in the control group 15 (9%) children were referred to the experimental intervention (unplanned referrals: see Chapter 4).

Significant differences in children were found between the research groups in five of the nine variables, namely gender (p<.01), age (p<.001), type of accommodation (p<.001), year registered (p<.001) and reason for homelessness (p<.05). A higher proportion of the self registered intervention group were male. A greater proportion of children in the intervention group registered by the health advocate were in the 5-15 years category, but the mean age was not vastly different (mean age 5.3 compared to 4.2 for the control group and 3.6 for the self registered intervention group). More children were registered in the first year of the study in both intervention groups and were more frequently living in hotel or B&B accommodation. A greater proportion of those registered by the health advocate were homeless for reasons other than domestic violence, usually family or friends being unwilling or unable to house them or due crime /harassment at their previous tenancy.

Like the adults in the study the differences noted indicate that patient recruitment has influenced the allocation of children to the groups in this study. These differences in characteristics are likely to reflect the outreach registration by the health advocate. This means that when comparing the workload for these three groups we will not be comparing "like with like".

There were however, no important differences between the self-registered children in the intervention group and the control group. **"Like with like" comparisons should therefore, ideally, be based on these patients.**

6

RESULTS: IMPACT OF EXTRA HEALTH ADVOCACY INPUT ON HEALTH SERVICE UTILISATION

The principle aim of this chapter is to test hypothesis II (see box 4.1 chapter 4). The second hypothesis of the study, is examined first because data was available on all subjects. Health service utilisation has been recorded from the health advocate's and general practitioners' medical records for the first 3 months after registration with the health centre. This chapter is organised into three main areas which will be explored for each group:

i) Health advocate workload contacts and interventions,
ii) Primary health care workload contacts and interventions and
iii) Reported secondary health care contacts.

HEALTH ADVOCACY FOR HOMELESS PEOPLE: WORKLOAD AND INTERVENTIONS

Health advocacy for homeless people is measured by focusing on the workload and support provided by the health advocate. Workload has been calculated from the health advocate's and general practitioners' medical records for the first three months after registration with the health centre. Contacts with the health advocate were separately coded as those initiated by the patient and those initiated by the health advocate. Contacts with families were recorded by using two methods outlined in Box 6.1 and box 6.2.

Table 6.1: Mean number of contacts with FHW per adult (METHOD ONE)

	GROUP	
	INTERVENTION GROUP (self registered)	INTERVENTION GROUP (FHW registered)
FHW initiated contacts	1.8726	2.4914
Patient initiated contacts [a]	1.6225	3.1067

[a] T-test; t=-2.397 df 248.5 p=.017

Box 6.1. Method 1 for counting contacts with the FHW: individual contacts

This is the number of contacts made with each family member. So, on a single visit to a family of four, if all four members were actively seen by the health worker this would result in four contacts.

Using the first method (table 6.1), less contacts were initiated by the health advocate for all patients who self registered (although this was not significant), whereas a significantly greater number of contacts were initiated by the patient for those registered by the health advocate (mean difference = 1.5 patient initiated contacts, CI= 0.3 to 2.7; p<.017).

Table 6.2: Mean number of contacts with FHW per adult (METHOD TWO)

	GROUP	
	INTERVENTION GROUP (self registered)	INTERVENTION GROUP (FHW registered)
FHW initiated contacts	.8296	1.0256
Patient initiated contacts [a]	.5956	1.0671

[a] T-test t=-2.651 df 244.762 p=0.009

Box 6.2. Method 2 for counting contacts with the FHW: proportionate contacts

This method is more conservative than the first; the one contact to the family of four would be divided by four to avoid multiple counting of contacts with the FHW.

The second, more conservative method of analysis (table 6.2) produces consistent results, but smaller differences between the intervention groups (mean difference = 0.5 patient initiated contacts, CI=0.1 to 0.8; p<.009). These differences may partly be accounted for by a substantial group of those who self registered (20%) who were unable to be contacted by the health advocate and therefore had zero contacts.

When using the second method of analysis it is also necessary to report the total workload per household. This is calculated by aggregating contacts per family. The results are shown in Table 6.3. This time, for those who self registered, more contacts were initiated by the health advocate, whereas for those registered by the health advocate a similar number of contacts were initiated by the patient.

Table 6.3: Mean number of contacts with FHW per household (METHOD TWO)

	GROUP	
	INTERVENTION GROUP (self registered)	INTERVENTION GROUP (FHW registered)
FHW initiated workload per household	1.5000	1.7324
Patient initiated fhw wkload per household [a]	.8378	1.5124

[a] T-test t=-2.523 df 192 654 p=.012

The first method (table 6.1) results in around two and a half times as many contacts as the second method (table 6.2). Using the first method over the three years of this study the health advocate initiated 566 separate contacts with adults and was contacted 637 times by patients (total contacts 1203). The second method resulted in 255 contacts initiated by the health advocate and 242 contacts initiated by the patient (total contacts 497). **Whatever method is used to record contacts, those patients registered by the health advocate have significantly more patient initiated contact with the health advocate compared to those patients who register themselves at the health centre.**

In addition to recording actual contact rates a summary rating of the type of support given to each patient over the three months registration period was made by the health advocate. The results are shown in Tables 6.4 & 5. The majority of patients had one or two contacts after the initial contact.

Table 6.4: Support given by the FHW : Adults in Intervention groups

		GROUP				TOTAL	
		INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW registered)			
		n	%	n	%	n	%
SUPPORT GIVEN BY FHW	Registration only	5	6.5%	7	4.6%	12	5.2%
	Registration and health assessment	7	9.1%	16	10.5%	23	10.0%
	1 or 2 additional contacts	46	59.7%	69	45.1%	115	50.0%
	3 > 6 contacts	11	14.3%	29	19.0%	40	17.4%
	6 or more contacts	8	10.4%	32	20.9%	40	17.4%

No significant difference between groups

Table 6.5: Support given by the FHW: adults in all research groups

		GROUP						TOTAL	
		CONTROL GROUP[a]		INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW registered)			
		n	%	n	%	n	%	n	%
SUPPORT GIVEN BY FHW	Registration only	137	92.6%	5	6.5%	7	4.6%	149	39.4%
	Registration and health assessment			7	9.1%	16	10.5%	23	6.1%
	1 or 2 additional contacts	7	4.7%	46	59.7%	69	45.1%	122	32.3%
	3 > 6 contacts	2	1.4%	11	14.3%	29	19.0%	42	11.1%
	6 or more contacts	2	1.4%	8	10.4%	32	20.9%	42	11.1%

[a] • The unplanned referral group were in receipt of FHW support

The health advocate's interventions are looked at further for adults in the study in Tables 6.6 & 6.7.

Table 6.6: Proportion of adults receiving intervention from the FHW Intervention groups

	GROUP				TOTAL	
	INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW registered)			
	n	%	n	%	n	%
Referrals [a]	5	5.2%	26	16.8%	31	12.4%
Telephone calls	24	25.0%	57	36.8%	81	32.3%
Letters written	9	9.4%	16	10.3%	25	10.0%
Meetings attended	0	.0%	1	.6%	1	.4%
Case conferences	2	2.1%	3	1.9%	5	2.0%

a. Chi square = 6.296 df 1 p=0.012 (continuity correction)

Table 6.7: Proportion of adults receiving intervention from the FHW - all groups

	GROUP						TOTAL	
	CONTROL GROUP[a]		INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW registered)			
	n	%	n	%	n	%	n	%
Telephone calls	3	2.0%	24	25.0%	57	36.8%	84	21.0%
Referrals	0	.0%	5	5.2%	26	16.8%	31	7.8%
Letters written	2	1.3%	9	9.4%	16	10.3%	27	6.8%
Meetings attended	1	.7%	0	.0%	1	.6%	2	.5%
Case conferences	0	.0%	2	2.1%	3	1.9%	5	1.3%

a. Patients in this group receiving intervention are analysed on an 'intention to treat' basis

The nature of advocacy work makes telephone calls on behalf of patients an important element of the workload. 199 telephone calls were made over the three years (for adults and children). Overall, more telephone calls were made for the proactively registered group (124) compared to the self registered intervention group (67). This was also the case for referrals made to other agencies (40 vs 8) and letters written (21 vs 8).

PRIMARY AND SECONDARY HEALTHCARE WORKLOAD FOR HOMELESS ADULTS

Use of primary health care services: patient consulting rates

Each face-to-face meeting between a patient and a doctor and/ or practice nurse was considered to be a contact. Annual contact rates were calculated for each individual by multiplying the number of contacts for the first 3 months temporary registration at PPHC by 12 divided by the time registered at PPHC (a similar method was adopted by Dickey et al, 1996). This may result in rather inflated rates.

The length of time registered with the practice[1] was known for almost 75% of the sample (n=295). Missing data for this variable is substituted with the mean length of time registered (2.3 months). Those cases who were registered with the practice for less than 15 days have been excluded from the calculations (n=65). The following calculations have been computed on a sample of 335 temporarily registered homeless adults.

For this sample (n=335) there were a total of 698 contacts made with the doctors at PPHC by homeless adults during the 3 years of this study. On average, each person saw a doctor 2.08 times during his or her stay in temporary accommodation in the practice area (mean 2.3 months). This increases to 2.3 contacts when 'home' visits are included (total home visits = 71) and 2.5 contacts (total contacts with the practice nurse = 67) when contacts with the practice nurse are included in the analysis.

Overall patient consultation rates compared to national rates of primary health care workload

When converted to annual rates these statistics can be compared with the most recent Morbidity Statistics from General Practice (MSGP4)(Office of Population Censuses and Surveys, 1994). The MSGP4 rate for all contacts with a doctor or practice nurse

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[1] i.e. length of time from registering with PPHC and leaving the hostel & the practice area. This was collected from hostel records. 90% were in temporary accommodation in the area for less than 6 months; 45% >2 months < 6 months; mean length of time in the area 2.9 months.

approximate more closely the actual contact rates than those reported in the General Household Survey (GHS) (Office for National Statistics, 1996). In the GHS respondents are asked whether they have spoken to a doctor for any reason during the previous two weeks, either on behalf of themselves or another person, and if so how often (self report). The MSGP4 contact rates on the other hand relied on all doctors and practice nurses in 60 practices in England and Wales to record each face-to-face contact with permanently registered patients and is therefore more comparable to the methodology used in this study.

Ninety six percent of all adults in the present study were between 16 and 44 years so the results are compared with the corresponding MSGP4 age group (15-44 years) statistics in table 6.8. When compared to the MSGP4 contact rates for stable populations with permanent registration the mean contact rates were 3.6 times higher for the homeless females and 6.6 times higher for homeless males. Within the MSGP4 study, contact rates were 50% higher for females. Within the homeless population this was not the case.

Table 6.8: Average annual contact rates recorded by the Morbidity Survey and the Family Health Project (aged 15-44 years).

	Females	**Males**
All contacts		
Homeless (n=335)*	16.4	14.6
MSGP4 study population (n=502,493)	4.6	2.2
Doctor contacts		
Homeless (n=335)*	14.3	14.4
MSGP4 study population (n=502,493)	4.2	2.1

*Homeless (females n=246; males n=89)

The workload associated with the homeless population is much greater than that of a comparable permanently registered population, even when one allows for the possible inflated computations for the annual rates achieved in this study.

Between group differences in use of primary health care services

One of the primary aims of the intervention was to reduce the workload of GPs and other health centre staff associated with the care of this group of patients. The hypothesis that there will be a reduction in the workload of the GPs and other health centre staff in relation to the experimental groups compared to that associated with the usual care control groups will be addressed in this section. Analysis will be completed on the full adult sample (n=400).

Table 6.9: Primary health care workload associated with homeless adults (n=400)

		GROUP						TOTAL ADULTS (n=400)	
		CONTROL GROUP (n=149)		INTERVENTION GROUP (self registered) (n=96)		INTERVENTION GROUP (FHW registered) (n=155)			
		n	%	n	%	n	%	n	%
GP CONTACTS[a]	0	22	14.8%	8	8.3%	73	47.1%	103	25.8%
	1	52	34.9%	32	33.3%	36	23.2%	120	30.0%
	2	32	21.5%	30	31.3%	21	13.5%	83	20.8%
	3	11	7.4%	10	10.4%	12	7.7%	33	8.3%
	4	10	6.7%	7	7.3%	5	3.2%	22	5.5%
	5 or more	22	14.8%	9	9.4%	8	5.2%	39	9.8%
GP HOME VISITS[b]	0	116	77.9%	80	83.3%	141	91.0%	337	84.3%
	1	26	17.4%	12	12.5%	10	6.5%	48	12.0%
	2 or more	7	4.7%	4	4.2%	4	2.6%	15	3.8%
PRACTICE NURSE	1 or more	17	11.4%	17	17.7%	16	10.3%	50	12.5%
DIFFERENT MEDICATIONS PRESCRIBED[c]	0	30	20.1%	22	22.9%	81	52.3%	133	33.3%
	1	45	30.2%	27	28.1%	34	21.9%	106	26.5%
	2	27	18.1%	20	20.8%	14	9.0%	61	15.3%
	3	21	14.1%	10	10.4%	16	10.3%	47	11.8%
	4 or more	26	17.4%	17	17.7%	10	6.5%	53	13.3%
REFERRALS BY GPS	1 or more	37	25.3%	17	17.7%	23	14.8%	77	19.4%
LETTERS WRITTEN BY GP	1 or more	25	16.8%	20	20.8%	16	10.3%	61	15.3%
MISSED APPOINTMENTS[d]	1 or more	18	12.1%	17	17.7%	36	23.2%	71	17.8%

[a] Chi square = 69.003 df 10 p=.000

[b] Chi square = 9.928 df 2 p=.007

[c] Chi square = 46.357 df 8 p=.000

[d] Chi square = 6.464 df 2 p=.039

Statistically significant between group differences were noted for number of GP contacts (p<.000), number of home visits (p<.01) and number of different medications prescribed (p<.000) (table 6.9). The mean GP contacts for each of the groups the control group, self registered intervention group and intervention group registered by the health advocate were 2.23, 2.39 and 1.21 respectively. All differences were in the hypothesised direction: the workload was less for the group registered by the health advocate compared to the control group and self registered intervention group. No significant differences were found between the control group and the self registered intervention group.

Significant between group differences were also detected for the number of missed appointments: a greater proportion of the Intervention group registered by the health advocate missed appointments (p<.05).

Between group differences in use of secondary health care services

No significant differences were detected between the groups on the secondary care variables: accident and emergency department attendance and number of investigations performed (table 6.10).

Table 6.10: Secondary health care workload associated with homeless adults (n=400)

		GROUP						TOTAL ADULTS (n=400)	
		CONTROL GROUP (n=149)		INTERVENTION GROUP (self registered) (n=96)		INTERVENTION GROUP (FHW registered) (n=155)			
		n	%	n	%	n	%	n	%
INVESTIGATIONS	0	123	82.6%	80	83.3%	135	87.1%	338	84.5%
	1	12	8.1%	11	11.5%	14	9.0%	37	9.3%
	2 or more	14	9.4%	5	5.2%	6	3.9%	25	6.3%
ACCIDENT & EMERGENCY CONTACTS	0	143	96.0%	90	93.8%	147	94.8%	380	95.0%
	1 or more	6	4.0%	6	6.3%	8	5.2%	20	5.0%

No significant differences found between groups

Between group differences in use of primary health care services for attenders only

Table 6.11: Primary health care workload associated with homeless adult attenders (n=316)

		GROUP						TOTAL ATTENDERS (n=316)	
		CONTROL GROUP (n=139)		INTERVENTION GROUP (self registered) (n=90)		INTERVENTION GROUP (FHW registered) (n=87)			
		n	%	n	%	n	%	n	%
GP CONTACTS	0	12	8.6%	2	2.2%	5	5.7%	19	6.0%
	1	52	37.4%	32	35.6%	36	41.4%	120	38.0%
	2	32	23.0%	30	33.3%	21	24.1%	83	26.3%
	3	11	7.9%	10	11.1%	12	13.8%	33	10.4%
	4	10	7.2%	7	7.8%	5	5.7%	22	7.0%
	5 or more	22	15.8%	9	10.0%	8	9.2%	39	12.3%
GP HOME VISITS	0	106	76.3%	74	82.2%	73	83.9%	253	80.1%
	1	26	18.7%	12	13.3%	10	11.5%	48	15.2%
	2 or more	7	5.0%	4	4.4%	4	4.6%	15	4.7%
CONTACTS WITH PRACTICE NURSE	0	125	89.9%	75	83.3%	73	83.9%	273	86.4%
	1 or more	14	10.1%	15	16.7%	14	16.1%	43	13.6%
DIFFERENT MEDICATIONS PRESCRIBED	0	23	16.5%	17	18.9%	17	19.5%	57	18.0%
	1	42	30.2%	26	28.9%	30	34.5%	98	31.0%
	2	27	19.4%	20	22.2%	14	16.1%	61	19.3%
	3	21	15.1%	10	11.1%	16	18.4%	47	14.9%
	4 or more	26	18.7%	17	18.9%	10	11.5%	53	16.8%
REFERRALS BY GPS	0	100	73.0%	73	81.1%	64	73.6%	237	75.5%
	1 or more	37	27.0%	17	18.9%	23	26.4%	77	24.5%
MISSED APPOINTMENTS [a]	.00	122	87.8%	75	83.3%	59	67.8%	256	81.0%
	1.00	17	12.2%	15	16.7%	28	32.2%	60	19.0%

[a] Chi square = 14.291 df 2 p<.001

Use of services was measured in another way so as to give a complete a picture as possible. Not all subjects used the services at the health centre, in particular, the intervention group registered by the health advocate. Many of these were in the area for less than 15 days. Further analysis is therefore provided on just those subjects who attended the health centre. This was done by eliminating from the analysis subjects who had no contact with a GP (neither at the health centre nor on a home visit). This eliminated 44% from the intervention group registered by the health advocate, 6% from the self registered intervention group and 7% from the control group. Table 6.11 shows a comparable primary health care workload between groups apart from the variable which measures the number of missed appointments per client where a greater proportion of the Intervention group registered by the health advocate failed to attend appointments (p<.001).

Between group differences in use of secondary health care services for attenders only

Table 6.12: Secondary health care workload associated with homeless adult attenders

		GROUP						TOTAL ATTENDERS (n=316)	
		CONTROL GROUP (n=139)		INTERVENTION GROUP (self registered) (n=90)		INTERVENTION GROUP (FHW registered) (n=87)			
		n	%	n	%	n	%	n	%
INVESTIGATIONS	0	115	82.7%	74	82.2%	69	79.3%	258	81.6%
	1	10	7.2%	11	12.2%	13	14.9%	34	10.8%
	2 or more	14	10.1%	5	5.6%	5	5.7%	24	7.6%
ACCIDENT & EMERGENCY CONTACTS	0	133	95.7%	84	93.3%	80	92.0%	297	94.0%
	1 or more	6	4.3%	6	6.7%	7	8.0%	19	6.0%

No significant differences between groups

Table 6.12 shows no significant differences between groups on secondary health care workload.

Between group differences: annual rates of primary health care service use

Table 6.13 shows the overall the annual rates for GP contacts at the health centre, all GP contacts and all GP contacts plus practice nurse contacts were 13.1, 14.3 and 16.0 respectively[2]. Analysis of variance has determined that group differences exist among the mean annual rates of GP contacts at the health centre, all GP contacts and all GP contacts plus practice nurse contacts (p<.000). Multiple comparisons using the Bonferroni significant difference test was used to determine which means differ. The Bonferroni test, based on Student's t statistic, adjusts the observed significance level for the fact that multiple comparisons are made. Using the Bonferroni test, the Intervention group registered by the health advocate had a lower annual contact rate on all three rates

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[2] It not necessary to show the rates for 'attenders only' as those cases who were registered with the practice for less than 15 days have already been excluded from the above calculations (n=65)

compared to the control group (<.01) and compared to the intervention group who self registered (<.001). No significant differences were found between the control group and the self registered intervention group.

Table 6.13: Primary health care workload associated with homless adults: annual contact rates

	Control Group (n=127)		Intervention group (self registered) (n=82)		Intervention group (FHW registered) (n=126)		Total (n=316)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
ANNUAL GP (health centre) CONTACT RATE [a]	14.7413	14.2869	17.2745	18.5560	8.7645	11.8157	13.11	15.005
ANNUAL GP (inc visits) CONTACT RATE [b]	16.4084	14.2876	18.4554	18.8970	9.5985	12.5568	14.35	15.391
ANNUAL GP (inc visits) & P. NURSE CONTACT RATE [c]	17.4800	15.6294	21.9926	26.8241	10.4831	13.0772	15.95	18.756

Analysis of Variance

a. F = 9.670 df 2 p=.000

b. F = 10.638 df 2 p=.000

c. F = 10.607 df 2 p=.000

Between group differences in primary health care workload over time

It is possible that as a result of the intervention groups and control group being housed at the same site, that any workload group effects may be reduced over time. When analysis of variance was carried out on the whole sample (were the length of time registered was known) (n=335), annual contact rates did not vary significantly over time.

Multivariate Analysis

So far the analysis presented has concentrated on how far the experimental intervention influences health centre workload. Multivariate analysis was used to further test one of the major hypothesis of this thesis, ie workload for the rest of the health centre staff would be reduced for those patients eligible for health advocacy input. It is reasonable to assume that there may be other variables which may explain variation in workload. The joint influence of the variables, taking account of possible correlations among them and controlling for other variables is investigated using a stepwise regression model.

Preliminary univariate analysis

Preliminary univariate analysis was performed to determine which of the variables of interest influence on their own total contacts with the health centre (contacts with GP + home visits by GP + contacts with the practice nurse).

Categorical explanatory variables with more than 2 categories were converted to 'dummy variables' (number of categories less 1). T-tests (or Mann Whitney U tests for non-normal data) were used to test for differences (table 6.14). For continuous or scored variables such as a LFS or NHP score, the correlation coefficient between each variable and the outcome variable (ie primary health care contacts) was calculated (table 6.15).

Table 6.14: Mean primary health care contacts associated with categorical variables

Variable	Yes	No	p-value
Takes regular medication	3.19	1.91	.000
Long-term illness	2.83	2.06	.010
Frequent user of street drugs	3.45	2.17	.045
Single	2.16	2.69	.086
Registered in 1993	2.48	2.12	.153
Lives in family hostel	1.98	2.35	.172
Reason for homelessness - harassment /crime	1.82	2.40	.183
Reason for homelessness - domestic violence	2.18	2.48	.302
Reason for homelessness - health /social reasons	2.59	2.27	.418
Reason for homelessness - refugee	3.11	2.30	.312
Reason for homelessness - family /friends unable / unwilling to continue to accommodate	2.43	2.31	.785
White	2.29	2.71	.261
Female	2.20	2.41	.451
Contact with health visitor or social worker	2.24	2.45	.449
Lives with family /partner	2.30	2.23	.768
Looks after relative with long term illness or disability	2.14	2.39	.555
Has emotional & / or practical support	2.38	2.27	.723

Table 6.15: Correlation coefficients of primary health care contacts with each continuous or scale variable

Variable	Correlation coefficient	p value
Length of time homeless before registration	0.253	.000
Length of time in area	0.231	.001
Satisfaction with health	-0.290	.000
Satisfaction with self	-0.203	.000
Mood	0.170	.002
Number of cigarettes smoked per day	0.083	.133
Number in household (registered with PPHC)	-.071	.156
Units of alcohol consumed per week	0.009	.881
Age	0.032	.527

Variables which did not indicate any significant differences in the independent variable, health centre workload, were not included in the multiple regression (these included gender, contact with other agencies, reported emotional or practical support, looking after a relative with a long term illness or disability and units of alcohol consumed per week).

Primary health care workload: model one

Potential confounding variables (reported long term illness, taking regular medication, length of time in area, number of cigarettes smoked per day, use of street drugs, length of time homeless before registering with PPHC, mood, number in household registered at PPHC and ethnic group) were included in the model. Those variables that showed differences between groups at baseline were also included regardless of the results of the preliminary univariate analysis: age; type of temporary accommodation; marital status and reason for homelessness. Each of these independent variables, including type of intervention, were entered into a stepwise regression analysis for explaining the health centre workload in the full sample of homeless adults (n=400).

Using a combination of forward and backward stepwise regression, at each step, the variable chosen for inclusion was that which made the most extra contribution to the explained variation. This process was repeated until no significant improvement was made by the addition of any other variable, using 0.05 level of significance as a cut off.

In the first regression which assessed total health centre workload, four variables remained in the final model: intervention group (health advocate registered); using street drugs frequently; taking regular medication and mood. Using the Adjusted R^2, this model explained 18.3% of the variance (F= 15.549 p<.0001).

Table 6.16: Stepwise regression assessing total health centre workload: model one summary

Step	**Variables included**	**Adjusted R2 (%)**	**Significance of improvement**
1	Intervention group (FHW reg)	10.1	<0.001
2	Use street drugs frequently	13.9	<0.001
3	Take regular medication	17.0	<0.001
4	Mood	18.3	<0.001

At step one being pro-actively registered by the health advocate explains 10.1%; at step two being registered by the health advocate and using street drugs frequently together explain 13.9%; at step 3 taking regular medication explains a further 3.1% and finally having a low mood explains a further 1.3%.

Table 6.17: Stepwise regression assessing total health centre workload: the final regression for model one

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	1.235	.411
Intervention group (FHW reg)	-1.492	.272
Uses street drugs frequently	1.366	.404
Take regular medication	.621	.197
Mood	.179	.079

The amount of primary health care contacts is explained by 0.62 (if taking regular medication) + 1.37 (if using street drugs frequently) + 0.18 (if describing self as depressed) - 1.49 (if in Intervention group registered by the health advocate) + 1.24.

Primary health care workload: model two

A further stepwise analysis was conducted this time adding the Life Fulfilment and Nottingham Health profile variables that were significantly correlated with workload: satisfaction with health and satisfaction with self. This reduced the sample to only those individuals who completed a baseline Life Fulfilment Scale (n=222). Five variables remained in the final model of this regression analysis which explained health centre workload: being in good health; intervention group (registered by health advocate); taking regular medication; use of street drugs and mood. Using the Adjusted R^2, this model explained 23.2% of the variance ($F= 11.485$ $p<.0001$).

Table 6.18: Stepwise regression assessing total health centre workload: model two summary

Step	Variable included	Adjusted R2 (%)	Significance of improvement
1	Being in good health	8.6	<0.001
2	Intervention group (FHW reg)	13.6	<0.001
3	Take regular medication	18.7	<0.001
4	Uses street drugs frequently	21.6	<0.001
5	Mood	23.2	<0.001

At step one, the patients rating of health explains 8.6%; at step two the patients rating of health together with taking regular medication explains 13.6%; at step three being pro-actively registered by the health advocate explains a further 5% ; at step four using street drugs frequently explains a further 3.9%, and finally all four variables and patients rating of mood explains 23.2% of variation in primary health care workload.

Table 6.19: Stepwise regression assessing total health centre workload: the final regression for model two

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	1.737	.812
Being in good health	-.451	.204
Intervention group (FHW reg)	-1.134	.315
Take regular medication	.967	.319
Uses street drugs frequently	1.256	.454
Mood	.200	.095

The amount of primary health care contacts is explained by 0.97 (if taking regular medication) + 1.26 (if using street drugs frequently) + 0.20 (if describing self as depressed) - 0.45 (if reporting being in good health) - 1.13 (if in the Intervention group registered by the health advocate) +1.74.

Primary health care workload: other models

The same stepwise regression analysis were repeated for the intervention groups and the control group and the results are summarised in table 6.20.

Table 6.20: Other regression models for total health centre workload

Dependent variable	Model Diagnostics	Variables (% variation explained)
Health centre* workload for intervention groups only	Model significance F=8.709 p=.000 Model fit R^2=.166 AR^2=.147	Pro-active FHW registration (8.9%) Patient initiated FHW contacts (3.7%) Long term illness (2.1%)
Health centre*‡ workload for intervention groups only	Model significance F=9.396 p=.000 Model fit R^2=.256 AR^2=.229	Being in good health (9.7%) Taking regular medication (6.4%) Pro-active FHW registration (6.8%)
Health centre workload for control group only	Model significance F=12.56 p=.000 Model fit R^2=.214 AR^2=.197	Taking regular medication (10.3%) Age (9.4%)
Health centre‡ workload for control group only	Model significance F=9.699 p=.000 Model fit R^2=.215 AR^2=.192	Taking regular medication (12.1%) Age (7.1%)

*Patient initiated FHW contacts and FHW initiated contacts are included in the independent variables
‡Satisfaction with health and self are included in the independent variables

PRIMARY AND SECONDARY HEALTH CARE WORKLOAD FOR HOMELESS CHILDREN

Between group differences: primary health care service use for homeless children

Table 6.21: Primary health care workload associated with homeless children (n=438)

		GROUP						TOTAL CHILDREN (n=438)	
		CONTROL GROUP (n=138)		INTERVENTION GROUP (self registered) (n=83)		INTERVENTION GROUP (FHW registered) (n=217)			
		n	%	n	%	n	%	n	%
GP CONTACTS [a]	0	31	22.5%	14	16.9%	139	64.1%	184	42.0%
	1	60	43.5%	32	38.6%	46	21.2%	138	31.5%
	2	27	19.6%	25	30.1%	18	8.3%	70	16.0%
	3	8	5.8%	8	9.6%	8	3.7%	24	5.5%
	4 or more	12	8.7%	4	4.8%	6	2.8%	22	5.0%
GP HOME VISITS [b]	1 or more	50	36.2%	25	30.1%	30	13.8%	105	24.0%
CONTACTS WITH PRACTICE NURSE	1 or more	13	9.4%	9	10.8%	12	5.5%	34	7.8%
DIFFERENT MEDICATIONS PRESCRIBED [c]	0	24	17.4%	17	20.5%	120	55.3%	161	36.8%
	1	39	28.3%	20	24.1%	45	20.7%	104	23.7%
	2	36	26.1%	19	22.9%	26	12.0%	81	18.5%
	3	23	16.7%	17	20.5%	15	6.9%	55	12.6%
	4 or more	16	11.6%	10	12.0%	11	5.1%	37	8.4%
REFERRALS BY GPS [d]	1 or more	13	9.4%	12	14.5%	12	5.5%	37	8.4%
LETTERS WRITTEN BY GP	1 or more	5	3.6%	5	6.0%	4	1.8%	14	3.2%
MISSED APPOINTMENTS	1 or more	9	6.5%	8	9.6%	15	6.9%	32	7.3%

[a] Chi square = 94.397 df 8 p=.000

[b] Chi square =25.361 df 2 p=.000

[c] Chi square = 69.858 df 8 p=.000

[d] Chi square = 6.434 df 4 p=.040

Statistically significant between group differences were noted for number of GP contacts (p<.000), number of home visits (p<.01), number of different medications prescribed (p<.000) and number of referrals made to other agencies by GPs. The mean GP contacts for children in each of the groups the control group, self registered intervention group and intervention group registered by the health advocate were 1.43, 1.51 and 0.61 respectively. All differences were in the hypothesised direction: the workload was less for the group registered by the health advocate compared to the control group and self registered intervention group. No significant differences were found between the control group and the self registered intervention group.

Between group differences in use of secondary health care services for homeless children

Table 6.22: Secondary health care workload associated with homeless children (n=438)

		GROUP						TOTAL CHILDREN (n=438)	
		CONTROL GROUP (n=138)		INTERVENTION GROUP (self registered) (n=83)		INTERVENTION GROUP (FHW registered) (n=217)			
		n	%	n	%	n	%	n	%
INVESTIGATIONS	1 or more	3	2.2%	5	6.0%	2	.9%	10	2.3%
ACCIDENT & EMERGENCY CONTACTS	1 or more	8	5.8%	6	7.2%	10	4.6%	24	5.5%

No significant differences between groups

No significant differences were detected on the secondary care variables for children: accident and emergency department attendance and number of investigations performed.

Between group differences: annual rates of primary health care service use for homeless children

The mean annual overall rates for GP contacts at the health centre, all GP contacts and all GP contacts plus practice nurse contacts were 7.79, 10.17 and 10.74 respectively. Analysis of variance has determined that group differences exist among the mean annual rates of GP contacts at the health centre, all GP contacts and all GP contacts plus practice nurse contacts (p<.000).

Table 6.23: Primary health care workload associated with homeless children: annual contact rates

	Control Group (n=118)		Intervention Group (self registered) (n=72)		Intervention Group (FHW registered) (n=175)		Total (n=365)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
ANNUAL GP CONTACT RATE [a]	9.9725	9.0765	11.6334	9.1467	4.7463	8.1720	7.7944	9.1456
ANNUAL GP (INC VISITS) CONTACT RATE [b]	13.0670	10.0102	14.8916	11.4583	6.2740	9.3080	10.1700	10.6612
ANNUAL GP (INC VISITS) &NURSE CONTACT RATE [c]	13.6987	10.0046	15.6436	11.8269	6.7317	9.4543	10.7420	10.8398

[a] F=21 607 df 2 p=.000

[b] F=26.316 df 2 p=.000

[c] F=27.134 df 2 p=.000

Multiple comparisons using the Bonferroni significant difference test was used to determine which means differ. Using the Bonferroni test, children pro-actively registered by the health advocate had a lower annual contact rate on all three rates compared to the control group (<.001) and compared to the intervention group who self registered (<.001). No significant differences were found between the control group and the self registered intervention group.

Multivariate Analysis

The analysis presented thus far has concentrated on how far the experimental intervention influences health centre workload of children. A stepwise regression model was used to investigate the joint influence of the variables, taking account of possible correlations among them and controlling for other variables.

Preliminary univariate analysis

As with the adults preliminary univariate analysis was performed to determine which of the variables of interest influence on their own total contacts with the health centre (table 6.24 and table 6.25).

Table 6.24: Mean primary health care contacts associated with children in each group for categorical variables

Variable	Yes	No	p-value
Takes regular medication	2.16	1.33	.005
Long-term illness	1.84	1.34	.025
Lives in family hostel	1.32	1.50	.321
Reason for homelessness - refugee	2.00	1.47	.281
Reason for homelessness - family /friends unable / unwilling to continue to accommodate	1.89	1.46	.258
White	1.32	2.08	.000
Female	1.28	1.65	.013
Contact with health visitor and social worker	1.81	1.40	.182
Contact with health visitor	1.79	1.32	.025
Not in contact with any other agency	1.28	1.67	.023

Table 6.25: **Correlation coefficients of primary health care contacts with each continuous or scale variable**

Variable	**Correlation coefficient**	**p value**
Length of time homeless before registration	0.067	.216
Length of time in area	0.220	.000
Number of children in family	-.233	.000
Age	-.358	.000

Primary health care workload: model one

Each of the independent variables, including type of intervention, were entered into a stepwise regression analysis for explaining the health centre workload in homeless children (n=438) . Potential confounding variables (reported long term illness, taking regular medication, length of time in area, length of time homeless before registering with PPHC, number of children in family, contact with other agencies and ethnic group) were included in the model. Those variables that showed differences between groups at baseline were also included regardless of the results of the preliminary univariate analysis: age; gender; type of temporary accommodation; year registered and reason for homelessness.

Using a combination of forward and backward stepwise regression, at each step, the variable chosen for inclusion in the model is that which makes the most extra contribution to the explained variation. This process was repeated until no significant improvement is made by the addition of any other variable, using 0.05 level of significance as a cut off. Five variables remained in the final model which assessed total health centre workload for children: age; intervention group (health advocate registered); length of time in area; having a long term illness and number of children in family. Using the Adjusted R^2, this model explained 33.7% of the variance (F= 29.593 p<.0001).

Table 6.26: Stepwise regression assessing total health centre workload for children: model one summary

Step	Variables included	Adjusted R2 (%)	Significance of improvement
1	Age	16.9	<0.001
2	Intervention group (FHW reg)	26.3	<0.001
3	Length of time in area	31.3	<0.001
4	Long term illness	33.0	<0.001
5	Number of children in family	33.7	<0.001

The most variation is explained by age (young children higher workload) (16.9%); being pro-actively registered by the FHW (9.4%), length of time in area (longer in area higher workload) (5.0%), then having a long term illness (1.7%) and finally number of children in family (0.7%).

Table 6.27: Stepwise regression assessing total health centre workload for children: the final regression for model one

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	1.804	.331
Age	-.192	.021
Intervention group (FHW reg)	-.938	.176
Length of time in area	.223	.042
Long term illness	.514	.193
Number of children in family	-.144	.073

The amount of primary health care contacts is explained by 0.22 (length of time in area) + 0.51 (having a long term illness) - 0.14 (number of children in family) - 0.94 (if in the Intervention group registered by the health advocate) - 0.19 (age) + 1.80.

HEALTH ADVOCATE'S WORKLOAD FOR HOMELESS ADULTS: MULTIVARIATE ANALYSIS

It is necessary to examine the health advocate's workload to infer any explanations for variation in workload between patients. The same procedure described for primary health care contacts for determining which variables to include in the regression analysis was followed. A further set of preliminary analysis was performed for the total health advocate workload (using the individual contacts method - see Box 6.1) and these are reported in table 6.28 and table 6.29.

Table 6.28: Mean health advocate contacts associated with each group for categorical variables

Variable	Yes	No	p-value
Takes regular medication	4.05	3.45	.389
Long-term illness	3.68	3.68	.996
Frequent user of street drugs	4.22	3.6	.582
Single	3.14	4.17	.006
Registered in 1995	1.65	3.80	.001
Lives in hotel / B&B	5.50	2.8	.001
Reason for homelessness - harassment /crime	3.99	3.58	.717
Reason for homelessness - domestic violence	3.49	3.78	.708
Reason for homelessness - health /social reasons	4.05	3.55	.639
Reason for homelessness - refugee	2.02	3.69	.438
Reason for homelessness - family /friends unable / unwilling to continue to accommodate	3.3	3.68	.750
White	3.81	2.71	.224
Female	3.71	1.57	.001
In contact with no other agencies (excluding housing)	3.14	4.17	.124
In contact with a health visitor	6.09	3.38	.084
In contact with a social worker	3.45	3.78	.663
Contact with health visitor or social worker	5.69	3.54	.214
Lives with family /partner	4.36	0.81	.000
Looks after relative with long term illness or disability	4.76	3.58	.250
Has emotional & / or practical support	3.67	3.77	.898

Table 6.29: Correlation coefficients of health advocate contacts with each continuous or scale variable

Variable	Correlation coefficient	p value
Number in household (registered with PPHC)	.426	.000
Length of time homeless before registration	.006	.922
Length of time in area	.090	.073
Satisfaction with spare time	-.192	.004
Satisfaction with self	-.157	.020
Mood	..384	.384
Number of cigarettes smoked per day	.130	.02
Units of alcohol consumed per week	.163	.005
Age	.013	.799

Potential confounding variables (length of time in area, number of cigarettes smoked per day, units of alcohol consumed per week, number in household registered at PPHC, ethnic group, registering with PPHC in 1995, gender, contact with other agencies, living situation, type of homeless accommodation) were included. Those variables that showed differences between groups at baseline were also included regardless of the results of the preliminary univariate analysis: age; type of temporary accommodation; marital status and reason for homelessness.

Health advocate's workload: model one

In the first regression which assessed health advocate workload in both intervention groups, four variables remained in the final model: number in household; pro-active registration to the intervention group; alcohol consumption and length of time in area. Using the Adjusted R^2, this model explained 35.2% of the variance (F= 33.847 p<.0001).

Table 6.30: Stepwise regression assessing health advocate workload: model one summary

Step	Variable included	Adjusted R2 (%)	Significance of improvement
1	Number in household	30.1	<0.001
2	Intervention group - pro-active registration	32.7	<0.001
3	Units of alcohol consumed per week	34.3	<0.001
4	Length of time in area	35.2	<0.001

In this model the most variation is explained by the number in the household (30.1%), being pro-actively registered by the health advocate (2.6%), the number of alcohol units consumed per week (1.6%) and length of time in the area (0.9%).

Table 6.31: Stepwise regression assessing the health advocate's workload: the final regression for model one

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	-5.241	.999
Number in household	2.641	.282
Intervention group - pro-active registration	2.237	.729
Units of alcohol consumed per week	.901	.347
Length of time in area	.414	.199

The amount of primary health care contacts is explained by 2.64 (number in household) + 2.24 (intervention group - pro-active registration) + 0.9 (units of alcohol consumed) + 0.41 (length of time in area) - 5.24

Health advocate's workload: model two

A further stepwise analysis to explain variation in the health advocate's workload was conducted this time adding the most highly correlated Life Fulfilment and Nottingham Health profile variables: satisfaction with housing and spare time and pain and energy. This reduced the sample to only those individuals who completed a baseline questionnaires (n=129). Four variables remained in the final model of this regression analysis: number in household; intervention group - pro-active registration, not in contact with any other agency and in contact with social worker & health visitor. Using the Adjusted R^2, this model explained 45.1% of the variance (F= 32.288 p<.0001).

Table 6.32: Stepwise regression assessing the health advocate's workload: model two summary

Step	Variable included	Adjusted R2 (%)	Significance of improvement
1	Number in household	38.6	<0.001
2	Intervention group - pro-active registration	42.0	<0.001
3	In contact with no other agency	44.0	<0.001
4	In contact with social worker & health visitor	45.1	<0.001

In this model the most variation is explained by the number in the household (38.6%), being pro-actively registered by the health advocate (3.4%), next not being in contact with other agencies (2%) and finally being in contact with a social worker or health visitor at the time of registration (1.1%).

Table 6.33: Stepwise regression assessing the health advocate's workload: the final regression for model two

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	-2.364	1.008
Number in household	.0376	.397
Intervention group - pro-active registration	3.379	1.057
In contact with no other agency	-2.934	.994
In contact with social worker & health visitor	-4.250	2.140

The amount of primary health care contacts is explained by 0.04 (number in household) 3.38 (intervention group - pro-active registration) - 2.93 (not in contact with other agencies) - 4.25 (in contact with social worker and health visitor) - 2.364.

Health advocate's workload: other models

Contacts with the health advocate were disaggregated into those initiated by the health advocate and those initiated by the patient and these were used as dependent variables in further stepwise regression analysis for the intervention groups. The results are summarised in table 6.34.

Table 6.34: Regression models for workload variables

Dependent variable	**Model Diagnostics**	**Variables (% variation explained)**
FHW initiated contacts with the FHW	Model significance F=27.450 p=.000 Model fit R^2=.267 AR^2=.257	Number in household reg' (23.1%) Pro-active FHW registration (2.6%)
FHW initiated contacts with the FHW	Model significance F=31.937 p=.000 Model fit R^2=.210 AR^2=.203 (Satisfaction with self and spare time are included in the independent variables)	Number in household reg' (18%) Pro-active FHW registration (2.3%)
Patient initiated contacts with the FHW	Model significance F=20.303 p=.000 Model fit R^2=.407 AR^2=.387	Number in household reg' (29.7%) Contact with soc. wkr and h.v. (3.1%) Contact with no other agency (2.4%) Alcohol consumption (1.6%) Lives in hotel / B&B (1.9%)
Patient initiated contacts with the FHW	Model significance F=24.755 p=.000 Model fit R^2=.294 AR^2=.282 (Satisfaction with self and spare time are included in the independent variables)	Number in household reg' (22.3%) Alcohol consumption (3.3%) Contact with soc. wkr and h.v. (1.2%) Contact with no other agency (1.4%)

SUMMARY OF RESULTS

The primary health care workload associated with the homeless population is much greater than that of a comparable permanently registered population, even when one allows for the possible inflated computations for the annual rates achieved in this study. When compared to the MSGP4 contact rates for stable populations with permanent registration the mean contact rates were 3.6 times higher for the homeless females and 6.6 times higher for homeless males.

Both the univariate and multivariate analysis indicated that patients pro-actively registered by the health advocate had less contacts with primary health care. Statistically significant between group differences were noted for number of GP contacts (p<.000), number of home visits (p<.01) and number of different medications prescribed (p<.000). All differences were in the hypothesised direction: the workload was less for the group registered by the health advocate compared to the control group. No significant differences were found between the control group and the self registered intervention group.

When the analysis was confined to adults who consulted with a GP, primary health care workload was comparable between groups on all variables excluding the number of missed appointments per client where a greater proportion of the intervention group registered by the health advocate failed to attend appointments (p<.001). However, annual rates for 'attenders' did indicate that this group had a lower annual contact rate on all three rates measured compared to the control group (<.01) and compared to the intervention group who self registered (<.001). No significant differences were found between the control group and the self registered intervention group. No significant differences were detected between groups on the use of secondary health care services recorded.

The multivariate analysis showed that 23% of the variance in primary health care workload for adults could be explained by five variables: patients' self rating of being in good health at intake to the study, being pro-actively registered by the health advocate (associated with less health centre contacts), taking regular medication, using street drugs frequently, and finally having a low mood (associated with more health centre contacts). Other variables which were associated with greater workload on the univariate analysis were reported long term illness, length of time in area, number of cigarettes smoked per day, length of time homeless before registering with PPHC, being married or family registered at PPHC and ethnic group. These however did not enter into the final explanatory models but it may be useful for future studies to collect these variables.

Similar results were found for children although overall they consumed less primary health care resources. Both the univariate and multivariate analysis indicated that patients pro-actively registered by the health advocate had less contacts with primary health care, although these differences may have been partly due to the demographic differences between the groups such as age, gender, type of accommodation and reason for homelessness. This was tested in the multivariate analysis which demonstrated that 33.7% of the variance in primary health care workload for children could also be explained by five variables: age; intervention group (registered by health advocate); length of time in area; having a long term illness and number of children in family.

The model explaining contact with the health advocate for both intervention groups was able to explain a larger variation (35%). Adults with families tended to have more contact with the health advocate, as did those who were pro-actively registered by the health advocate, those with a high alcohol consumption and those who resided in the PPHC practice area for a longer period of time. Further analysis showed that when the contacts with the health advocate were disaggregated, more variables explained variation in patient initiated workload compared to that initiated by the health advocate. Variation in patient initiated workload could also be explained by contact with a social worker and health visitor, contact with no other agency, high alcohol consumption and living in a hotel or B&B.

7

RESULTS: IMPACT OF EXTRA HEALTH ADVOCACY INPUT ON HEALTH RELATED QUALITY OF LIFE OUTCOMES

The principle aim of this chapter is to test hypothesis I: those eligible to receive the health advocacy approach will have better health related quality of life outcomes than the patients receiving the 'usual care'. This chapter is organised into two main sections. The follow up study suffered a high attrition rate so the potential consequences of this are deliberated in some detail in the first section. Each of the following are considered: the response rates achieved in this study; the implications of the attrition on the socio-demographics and quality of life of the follow up sample; the workload associated with the follow up sample; the socio-demographic and workload comparability of the three research groups in the follow up sample. The main section of this chapter addresses the impact of health advocacy on health related quality of life.

RESPONSE RATES FOR THE HEALTH RELATED QUALITY OF LIFE OUTCOME MEASURES

Table 7.1: Response rates: Health related quality of life data collected from homeless people registered at PPHC from 1993 - 1995, across the different modes of registration

		Intervention Group Registered by:	
	Control Group	**Self**	**Health advocate**
Baseline set of questionnaires:			
Possible adult sample:	n=149	n=96	n=155
Given baseline questionnaires	117 (78.5%)	70 (72.9%)	139 (89.7%)
Refused	2 (1.3%)	3 (3.1%)	5 (3.2%)
Not Given	30 (20.1%)	23 (24.0%)	11 (7.1%)
Of those given:	n=117	n=70	n=139
Returned baseline questionnaires	94 (80.3%)	42 (60.0%)	90 (64.7%)
Not returned	23 (19.7%)	28 (40.0%)	49 (35.3%)
Of those returned:	n=94	n=42	n=90
Spoilt	1 (1.1%)	2 (4.8%)	1 (1.1%)
Useable	93 (98.9%)	40 (95.2%)	89 (98.6%)
Follow-up set of questionnaires:			
Possible sample	n=93	n=40	n=89
Given follow-up questionnaires	67 (72.0%)	30 (73.2%)	74 (82.2%)
Not given	26 (28.0%)	10 (26.8%)	15 (16.9%)
Of those given:	n=67	n=30	n=74
Returned follow-up questionnaires	42 (62.7%)	22 (73.3%)	53 (71.6%)
Not returned	25 (37.3%)	9 (26.7%)	21 (28.4%)

Table 7.1 shows the response rates for quality of life data returned from subjects assigned to the 3 research groups. Overall, 81.5% (326) of all adult patients (over 16 years) were given questionnaires to fill in. Only 2.5% (10) refused to complete questionnaires and 16.0% (64) were not given questionnaires because they could not be contacted after numerous attempts at calling at the client's temporary address, or in a

few cases because the researchers felt that the clients were too distressed or too ill to be asked to complete questionnaires.

Of the 326 eligible adults, 226 (69.3%) returned questionnaires at registration; 222 (98.2%) were useable. A greater proportion (94; 80.3%) of the control group clients returned baseline questionnaires (Chi square = 10.909 df2 p=0.004). Clients could only be considered for follow up if the first set of questionnaires had been completed (n=222). Of these 171 (77.0%) were able to be tracked and were given follow up questionnaires; the proportion of clients contacted at follow up in each group did not differ significantly. 117 (68.4%) follow up questionnaires administered were returned and the proportions did not vary significantly between groups.

IMPLICATIONS OF ATTRITION

Despite persistent efforts at following up these deprived and highly mobile patients, high attrition rates prevailed; overall 52.7% (117/222) of possible subjects were included in the follow up study. The largest attrition (100; 30.7%) occurred at baseline when administered questionnaires were not returned. Response rates were better for the intervention groups: 55.0% (22/40) in the self registered intervention group; and 59.6% (53/89) in the intervention group registered by the health advocate compared to 45.5% (42/93) in the control group. These differences, although not statistically significant reflects that 'case-managed' clients are easier to track; indeed maintaining contact with the client is part of the health advocate's role. These response rates are comparable to other studies. A high proportion of longitudinal outcome studies evaluating services for homeless populations located in the systematic review (chapter 3) reported attrition rates of more than 40% (Morse et al, 1992; Prabucki et al, 1995; Rife et al, 1991; Toro et al, 1997; Conrad et al, 1998; Shlay and Holupka, 1992; Stretch and Kreuger, 1992 and Rosenheck et al, 1995).

The questionnaires obtained at the baseline stage also serve as a useful tool for measuring the health status and quality of life (QOL) of a larger sample of homeless (n=222). This sample has already been analysed in chapter five.

Assessments of health related quality of life outcomes from the patients' perspective are derived from a follow-up group consisting of patients who returned both sets of questionnaires (n=117). The high attrition rate (47.3%) makes it important to consider the effects of bias and the way in which this might affect the results. The representativeness of this sample will therefore be investigated before analysing the results of the follow up study.

Was the follow-up sample representative of the population under consideration? This is assessed in a number of ways: *first* by comparing the demographic baseline characteristics of the non-respondents not included in the follow up sample (n= 283) with respondents in the follow-up sample (n=117). *Second,* by separating the samples we can assess the baseline demographic characteristics of the follow up respondents, baseline only respondents and non-respondents. *Third,* the baseline demographic characteristics of the follow up sample and baseline only respondents are compared ; and *fourth*, the health related quality of life results of those who only completed the first set of questionnaires are compared with those in the follow up sample. All four levels of analysis are repeated for each of the experimental groups in the study.

Table 7.2: Demographic, research and social composition of the non-responders and responders in the follow up study.

	Non-responders n=277	Follow up responders n=117
AGE (mean)	26.78 yrs	26.17 yrs
	%	%
RESEARCH GROUP		
Intervention - self reg	74 (26.7)	22 (19.0)
Intervention - FHW reg	102 (36.8)	52 (44.8)
Control	101 (36.5)	42 (36.2)
REGISTRATION TYPE		
Self registration	173(62.6)	61(52.6)
Outreach (FHW initiated)	90(32.4)	45(38.8)
Outreach (Patient initiated)	14(5.0)	10(8.6)
SEX		
Female	214 (77.3)	84 (72.4)
TEMPORARY ACCOMMODATION [a]		
Women's Refuges	117(42.2)	35(30.2)
Family Hostels	76 (27.4)	28(24.1)
Hotels and B&Bs	35(12.6)	22(19.0)
Young Persons' Hostel	36 (13.0)	20(17.2)
ADR hostel	13 (4.7)	11(9.5)
MARITAL STATUS		
Single	105 (60.3)	61 (62.2)
Married	29 (16.7)	14 (14.3)
Separated	23 (13.2)	13 (13.3)
Divorced	17 (10.4)	10 (10.1)
ETHNIC GROUP [b]		
White British	185 (81.4)	105 (90.5)
Black British	14 (6.2)	6 (5.2)
Other	28 (12.4)	5 (4.8)
LIVING SITUATION		
With children	113 (51.1)	48 (41.4)
Alone	55 (24.9)	32 (27.6)
With family (children & partner, parents)	43 (19.5)	24(20.7)
With partner	10(4.5)	12 (10.3)
LONG TERM ILLNESS REPORTED	82 (37.4)	52 (45.7)
LENGTH OF TIME HOMELESS BEFORE REGISTRATION		
>=1 month	93 (48.2)	35 (33.7)
>1 month <= 2 months	25 (13.0)	12 (11.5)
>2 months <= 3 months	13 (6.7)	12 (11.5)
>3 months <= 4 months	5 (2.6)	6 (5.8)
>4 months <= 12 months	28 (14.5)	19 (18.3)
>12 months	29 (15.0)	20 (19.2)

[a] X^2=9.778 df 4 p=.044

[b] X^2=6.074 df 2 p=.048

For the first comparison, the results in table 7.2 show the two samples to be comparable on eight of the ten demographic, research and social variables. Differences were noted on two variables: there was a greater proportion of non-responders who were temporarily housed in either of the two women's refuges in the area (Chi square =9.778 df 4 p=.044) and a greater proportion who were from ethnic minority groups (Chi square=6.007 df 2 p=.050). The first difference is not thought to be troublesome as the follow up sample still has a majority of subjects from women's refuges, but has a greater spread of homeless people from other forms of temporary accommodation. The study was unfortunately unable to resource the inclusion of non-English speaking ethnic minority groups in the quality of life and health status assessments as this would have required translation and further validation of the instruments used.

Minimal demographic differences (4/40) were found in the comparison of non-responders and the follow up sample in the full sample and each of the three experimental groups; these are summarised in table 7.3.

Table 7.3: Summary of significant differences in demographic characteristics detected between non responders and follow up sample at the 5% level of significance.

	Non-respondents vs follow up comparisons			
	Total sample	**Intervention group (self registered)**	**Intervention group (FHW registered)**	**Control group**
Demographic comparison (10 tests)	Accommodation Ethnicity	-	Long term illness	Accommodation
Number of differences detected	2	0	1	1

Was the follow up sample different from non-responders or responders who only returned baseline questionnaires?

The baseline only responders, follow up responders and non-responders were also compared on ten baseline characteristics (table 7.4 and table 7.5). Six out of ten baseline characteristics showed no statistically significant differences between the three groups. There was a higher proportion of intervention group registered by the health advocate in the follow up sample and a higher proportion of control group subjects in the baseline only sample (Chi square=14.737 df 4 p=.005). There was a greater proportion of non-responders and baseline only sample who were temporarily housed in either of the two women's refuges in the area Chi square =25.246 df 8 p=.001) and a greater proportion of non responders who were from ethnic minority groups (Chi square=19.355 df 4 p=.001). Finally, people who lived alone were more prevalent in the follow up samples and those who lived with children were slightly under represented in the follow up sample (Chi square =23.644 df 6 p=.001).

Table 7.4: Summary of significant differences in demographic characteristics detected between non responders, baseline only responders and follow up sample at the 5% level of significance.

	Non-respondents, baseline only, follow up comparisons			
	Total sample (see table 7.5)	**Intervention group (self registered)**	**Intervention group (FHW registered)**	**Control group**
Demographic comparison (10 tests)	Research group Accommodation Ethnicity Living situation	Accommodation	Ethnicity Long-term illness	Accommodation Ethnicity
Total differences found	4	1	2	2

Table 7.5 **Demographic, research and social composition of non-responders, baseline only responders and responders in the follow up study.**

	Non-responders n= 177	Baseline only responders n=105	Follow up responders n=117
AGE (mean)	26.89 yrs	26.75	26.17 yrs
	%	%	%
RESEARCH GROUP [a]			
Intervention - self reg	56 (31.5)	18 (17.1)	22 (18.8)
Intervention - FHW reg	66 (37.1)	36 (34.3)	53 (45.3)
Control	56 (31.5)	51 (48.6)	42 (35.9)
REGISTRATION TYPE			
Self registration	111(62.4)	67(63.8)	61 (52.1)
Outreach (FHW initiated)	54(30.3)	36(34.3)	46 (39.3)
Outreach (Patient initiated)	13(7.3)	2(1.9)	42 (35.9)
SEX			
Female	139 (78.1)	80 (76.2)	84 (71.8)
TEMPORARY ACCOMMODATION [b]			
Women's Refuges	75 (42.1)	44 (41.9)	35 (29.9)
Family Hostels	54 (30.3)	24 (29.9)	29 (24.8)
Hotels and B&Bs	29 (16.3)	7 (6.7)	22 (18.8)
Young Persons' Hostel	16 (9.0)	20 (19.0)	20 (17.1)
ADR hostel	4 (2.2)	10 (9.5)	11 (9.4)
MARITAL STATUS			
Single	65 (60.7)	41 (57.7)	61 (62.9)
Married	11 (10.3)	9 (12.7)	10 (10.3)
Separated	12 (11.2)	11 (15.5)	12 (12.4)
Divorced	19 (17.8)	10 (14.1)	14 (14.4)
ETHNIC GROUP [c]			
White British	98 (74.8)	90 (89.1)	105 (90.5)
Black British	8 (6.1)	6 (5.9)	6 (5.2)
Other	25 (19.1)	5 (5.0)	5 (4.3)
LIVING SITUATION [d]			
With children	67 (53.2)	50 (50.0)	47 (40.5)
Alone	22 (17.5)	34 (34.0)	32 (27.6)
With family (children & partner, parents)	34 (27.0)	9 (9.0)	25 (21.6)
With partner	3 (2.4)	7 (7.0)	12 (10.3)
LONG TERM ILLNESS REPORTED	45 (36.6)	40 (39.6)	52 (44.8)
LENGTH OF TIME HOMELESS BEFORE REGISTRATION			
>=1 month	55 (53.9)	38 (42.2)	35 (33.7)
>1 month <= 2 months	15 (14.7)	10 (11.1)	12 (11.5)
>2 months <= 3 months	5 (4.9)	7 (7.8)	13 (12.5)
>3 months <= 4 months	1 (1.0)	4 (4.4)	5 (4.8)
>4 months <= 12 months	11 (10.8)	17 (18.9)	19 (18.3)
>12 months	15 (14.7)	11 (15.6)	20 (19.2)

[a] $X^2=14.737$ df 4 $p=.005$
[b] $X^2=25.246$ df 8 $p=.001$
[c] $X^2=19.355$ df 4 $p=.001$
[d] $X^2=23.644$ df 6 $p=.001$

Did the follow-up sample have health status and QOL at baseline comparable to that of respondents who completed questionnaires at intake?

In order to further establish whether or not the follow up sample (n=117) is representative of the larger sample, the life fulfilment and health status of the follow up sample were compared with that of respondents who returned only baseline questionnaires (n=105). The results are summarised in table 7.6.

Table 7.6: Summary of significant differences detected between health related quality of life baseline only responders and follow up sample at the 5% level of significance.

	Baseline only responders vs follow up sample comparisons			
	Total sample (see tables 7.5, 7.7, 7.8, 7.9 & 7.10)	**Intervention group (self registered)**	**Intervention group (FHW registered)**	**Control group**
Demographic comparison (10 tests)	Living situation	-	-	Accommodation
NHP comparisons (6 tests)	-	-	-	Social isolation
LFS comparisons (13 tests)	Housing Spare time	Area of residence	-	-
Faces Scale	-	-	-	-
Total differences found	3	1	0	2

Nottingham Health Profile

There were no statistically significant differences found between the baseline only sample and the follow up sample at baseline on the energy, emotional reactions, social isolation, sleep and physical mobility dimensions[1] (T-tests) (table 7.7). As with the demographic comparisons the baseline only sample and the follow up sample were further divided into the two intervention groups and control groups. The baseline only respondents and follow up respondents were compared in all three groups. The results are summarised in table 7.6 . No statistically significant differences were found in either

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[1] The NHP data were analysed in raw and transformed forms and the results were identical; for ease of understanding un-transformed data are presented.

intervention group, however, the control group rated greater social isolation in the baseline only sample (p<.05). Thus on 24 separate significance tests only 1 showed a statistically significant difference at the 5% level of significance; showing that baseline health status and life fulfilment of the follow up sample were adequately representative of the whole sample.

Life Fulfilment Scale

Table 7.7: Nottingham Health Profile: Mean scores of baseline only responders and follow up sample

	Baseline only respondents (n=105)		Follow up respondents (n=117)		All respondents (n=222)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Emotional distress	54.3205	32.1076	51.3674	31.5823	52.7639	31.7871
Social Isolation	36.2329	33.8502	33.3251	33.8695	34.7084	33.8090
Sleep	54.2373	33.1519	49.4989	33.4364	51.7651	33.3044
Energy	38.2286	37.1560	40.1333	37.0839	39.2272	37.0398
Pain	10.1677	23.6932	14.4130	24.7104	12.4054	24.2681
Physical Mobility	7.2984	13.9925	8.6821	15.2607	8.0241	14.6519

No significant differences detected between baseline and follow up respondents

The follow up sample was less fulfilled on the spare time item (p=0.016) and the housing item (p=0.028) (table 7.8). Both samples were comparable on the other eight items, personal and material subscale, overall LFS score (table 7.9). Both samples were further divided into the two intervention groups and control group and compared on all the LFS variables. The results have already been summarised in table 7.6. Within the self registered intervention group there was one statistically significant difference, indicating that those in the follow up sample were less satisfied with where they were living at intake (p=0.017). No statistically significant differences on any of the LFS items or scores were found between the baseline only sample or the follow up sample within either the intervention group registered by the health advocate or the control group.

Table 7.8: Life Fulfilment Scale Items: mean discrepancy scores of baseline only and follow up responders

	Baseline only responders (n=105)		Follow up responders (n=117)		All baseline responders (n=222)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
A good family life	6.2353	3.9406	5.7778	4.2469	5.9909	4.1041
Close friends to confide in	3.9412	3.4693	3.9231	3.3352	3.9315	3.3905
Happy marriage or similar	3.5686	4.4086	2.5897	3.9766	3.0457	4.2022
Doing things you enjoy in spare time [a]	4.2941	3.1484	5.3846	3.1096	4.8767	3.1678
Being in good health	6.6078	3.2094	6.7094	3.1543	6.6621	3.1731
Being happy with yourself	5.9608	3.4610	6.2991	3.6702	6.1416	3.5701
Having a secure and stable job	.9216	2.7743	.6923	2.2647	.7991	2.5116
Being happy with area where you live	3.66	.57	3.63	.63	3.65	.60
Having housing that meets your needs [b]	5.1980	3.5072	6.3448	3.7904	5.8111	3.6976
Having enough money to do most things	6.9608	3.5819	6.4530	3.2840	6.6895	3.4274

A high score denotes low fulfilment.

The highest possible score for each item is 12 and the lowest is 0.

T-Test

[a] $t=-2.574$ df 217 $p=0.011$

[b] $t=-2.30$ df 215 $p=.022$

Table 7.9: Life fulfilment overall and sub scales: mean discrepancy scores of baseline only and follow up responders

	Baseline only responders (n=105)		Follow up responders (n=117)		All baseline responders (n=222)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Personal fulfilment	30.6078	14.3990	30.6838	12.9499	30.6484	13.6122
Material fulfilment	17.2871	7.7991	18.9123	7.9150	18.1488	7.8845
Overall life fulfilment	48.5545	18.5389	50.4561	16.9972	49.5628	17.7217

A high score denotes low fulfilment.

Faces scale

There were no significant differences between baseline only respondents and follow up sample respondents in the whole sample or each research group (table 7.10 & 7.6).

Table 7.10: Faces Scale: mean scores of baseline only and follow up responders

	Baseline only responders (n=105)		Follow up responders (n=117)		All baseline responders (n=222)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Faces scale	4.05	1.73	4.18	1.77	4.12	1.75

Not significant

Conclusion

In total 200 statistical tests of significance were carried out comparing non responders and responders: 30 comparing the demographic and social characteristics, health status and life fulfilment of the whole follow up sample and all non-responders; a further 30 tests compared follow up sample and all non-responders in each of the experimental groups; 10 comparing the demographic characteristics of all non-respondents, baseline only respondents and follow up respondents (x3 experimental groups) and 10 directly comparing the demographic characteristics of baseline only respondents and follow up respondents (x3 experimental groups) . In total 20 statistically significant differences (p<.01) were found between the follow up sample and non-respondents. Because one out of 20 would be significant by chance at p<.05 and two out of 20 at p<.01 (see Conrad et al, 1998), we conclude that the differences found are not a significant problem in this study. We can regard the follow up sample as adequately representative of the full study sample both demographically and in terms of measured health related quality of life at intake to the study.

COMPARABILITY OF THE THREE RESEARCH GROUPS IN THE FOLLOW UP SAMPLE

In non-randomised trials one must establish that like has been compared with like before making causal inferences about the effects of care (Chalmers, 1989).

Socio-demographic characteristics

The socio-demographic characteristics of each group in the follow up sample are shown in table 7.11. Statistically significant differences were found between the groups on two of the eleven variables. A significant difference was observed in age (F=3.327, p=.04). The Bonferonni test showed that the intervention group registered by the health advocate

Table 7.11 : Baseline socio-demographic characteristics of the follow up sample (n=117)

		GROUP						TOTAL ADULTS (n=117)	
		CONTROL GROUP (n=42)		INTERVENTION GROUP (self reg)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)			
		n	%	n	%	n	%	n	%
GENDER	Male	16	38.1%	4	18.2%	13	24.5%	33	28.2%
	Female	26	61.9%	18	81.8%	40	75.5%	84	71.8%
AGE[a]	16 - 30 years	29	69.0%	12	54.5%	46	86.8%	87	74.4%
	31 years or more	13	31.0%	10	45.5%	7	13.2%	30	25.6%
TEMPORARY ACCOMMODATION	Womens Refuges	12	28.6%	7	31.8%	16	30.2%	35	29.9%
	Family Hostels	8	19.0%	5	22.7%	16	30.2%	29	24.8%
	Hotels and B&Bs	5	11.9%	4	18.2%	13	24.5%	22	18.8%
	Other hostels	17	40.5%	6	27.3%	8	15.1%	31	26.5%
ETHNIC GROUP	White British	37	88.1%	19	86.4%	49	94.2%	105	90.5%
	Black British	4	9.5%	2	9.1%	0	.0%	6	5.2%
	Other ethnic groups	1	2.4%	1	4.5%	3	5.8%	5	4.3%
MARITAL STATUS	Single	17	60.7%	15	71.4%	29	60.4%	61	62.9%
	Married /with permenant partner	1	3.6%	2	9.5%	11	22.9%	14	14.4%
	Divorced /separated	10	35.7%	4	19.0%	8	16.7%	22	22.7%
WHO THE PATIENT LIVES WITH	Alone	17	40.5%	6	27.3%	9	17.3%	32	27.6%
	With partner	3	7.1%	2	9.1%	7	13.5%	12	10.3%
	With partner and children	7	16.7%	4	18.2%	14	26.9%	25	21.6%
	With children	15	35.7%	10	45.5%	22	42.3%	47	40.5%
LONG TERM ILLNESS		16	38.1%	10	45.5%	26	50.0%	52	44.8%

[a] Chi square = 9.448 df 2 p=.009

/continued

Table 7.11 (continued): Baseline socio-demographic characteristics of the follow up sample (n=117)

		GROUP						TOTAL ADULTS (n=117)	
		CONTROL GROUP (n=42)		INTERVENTION GROUP (self reg)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)			
		n	%	n	%	n	%	n	%
YEAR REGISTERED	1993	14	33.3%	8	36.4%	24	45.3%	46	39.3%
	1994	13	31.0%	11	50.0%	21	39.6%	45	38.5%
	1995	15	35.7%	3	13.6%	8	15.1%	26	22.2%
LENGTH OF TIME SINCE HOUSING PROBLEMS	1 month or less	9	25.0%	5	23.8%	21	44.7%	35	33.7%
	1 - 3 months	10	27.8%	6	28.6%	9	19.1%	25	24.0%
	3 - 6 months	4	11.1%	2	9.5%	5	10.6%	11	10.6%
	6 - 12 months	7	19.4%	2	9.5%	4	8.5%	13	12.5%
	12 months or more	6	16.7%	6	28.6%	8	17.0%	20	19.2%
REASON FOR HOMELESSNESS	Domestic violence	12	44.4%	8	47.1%	15	41.7%	35	43.8%
	Other health /social reasons	5	18.5%	7	41.2%	4	11.1%	16	20.0%
	Relatives /friendes unwilling /unable to accommodate	4	14.8%	1	5.9%	6	16.7%	11	13.8%
	Harrassment /crime	4	14.8%	1	5.9%	9	25.0%	14	17.5%
	Loss of previous tenancy	2	7.4%	0	.0%	2	5.6%	4	5.0%
EMPLOYMENT STATUS	Unemployed	32	78.0%	16	72.7%	33	63.5%	81	70.4%
	Housewife	7	17.1%	6	27.3%	13	25.0%	26	22.6%
	Longterm sickness / medically retired	0	.0%	0	.0%	5	9.6%	5	4.3%
	Student /training scheme	1	2.4%	0	.0%	0	.0%	1	.9%
	Employed	1	2.4%	0	.0%	1	1.9%	2	1.7%
CONTACT WITH OTHER AGENCIES [a]	No contact	17	41.5%	3	13.6%	29	55.8%	49	42.6%
	Social worker	10	24.4%	9	40.9%	11	21.2%	30	26.1%
	Health visitor	6	14.6%	4	18.2%	7	13.5%	17	14.8%
	Both social worker and health visitor	4	9.8%	4	18.2%	1	1.9%	9	7.8%
	Other agency	4	9.8%	2	9.1%	4	7.7%	10	8.7%

[a] Chi square = 10.482 df 4 p=.033

(mean age 24.5 years) tended to be significantly younger than the self registered intervention group (mean age 29.1 years) (mean difference 4.6 yrs upper CI 9.0; lower CI 0.2 years).

A greater proportion of the self registered group had contact with a social worker at baseline (Chi square=10.482 df4 p=.033) although the actual numbers were comparable between groups. This difference may be a function of the low numbers in this group.

Primary health care workload

Table 7.12: Primary health care workload associated with the follow up sample (n=117)

		GROUP						TOTAL ADULTS (n=117)	
		CONTROL GROUP (n=42)		INTERVENTION GROUP (self reg)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)			
		n	%	n	%	n	%	n	%
GP CONTACTS[a]	0	8	19.0%	1	4.5%	20	37.7%	29	24.8%
	1	6	14.3%	5	22.7%	9	17.0%	20	17.1%
	2	11	26.2%	6	27.3%	9	17.0%	26	22.2%
	3	3	7.1%	6	27.3%	8	15.1%	17	14.5%
	4	5	11.9%	0	.0%	3	5.7%	8	6.8%
	5 or more	9	21.4%	4	18.2%	4	7.5%	17	14.5%
GP HOME VISITS	0	31	73.8%	19	86.4%	47	88.7%	97	82.9%
	1	8	19.0%	2	9.1%	4	7.5%	14	12.0%
	2 or more	3	7.1%	1	4.5%	2	3.8%	6	5.1%
CONTACTS WITH PRACTICE NURSE	0	37	88.1%	16	72.7%	45	84.9%	98	83.8%
	1 or more	5	11.9%	6	27.3%	8	15.1%	19	16.2%
DIFFERENT MEDICATIONS PRESCRIBED	0	7	16.7%	6	27.3%	19	35.8%	32	27.4%
	1	11	26.2%	6	27.3%	15	28.3%	32	27.4%
	2	7	16.7%	3	13.6%	7	13.2%	17	14.5%
	3	7	16.7%	2	9.1%	7	13.2%	16	13.7%
	4 or more	10	23.8%	5	22.7%	5	9.4%	20	17.1%
REFERRALS BY GPS	0	31	75.6%	16	72.7%	43	81.1%	90	77.6%
	1 or more	10	24.4%	6	27.3%	10	18.9%	26	22.4%
LETTERS WRITTEN BY GP	1 or more	9	21.4%	7	31.8%	9	17.0%	25	21.4%
MISSED APPOINTMENTS [b]	1 or more	7	16.7%	10	45.5%	20	37.7%	37	31.6%

[a] Chi square = 13.762 df 6 p=.032

[b] Chi square = 7.207 df 2 p=.027

Statistically, the utilisation of services between the three research groups were comparable, but the data suggests that there are between group differences in the hypothesised direction, similar to those found in the full data set. That is, the intervention group registered by the health advocate uses less resources than the self registered or control groups. The smaller sample sizes may have reduced the power to detect statistically significant differences. A significantly higher proportion of the intervention groups missed appointments compared to the control group (p<.05).

Health Service Utilisation: How Does the Follow Up Sample Compare with the Full Sample?

Primary health care workload

Table 7.13: Primary health care workload associated with the follow up sample and the non-follow up sample

		FOLLOW UP STATUS				TOTAL ADULTS (n=400)l	
		Non-follow up sample (n=283)		Follow up sample (n=117)			
		n	%	n	%	n	%
GP CONTACTS [a]	0	74	26.1%	29	24.8%	103	25.8%
	1	100	35.3%	20	17.1%	120	30.0%
	2	57	20.1%	26	22.2%	83	20.8%
	3	16	5.7%	17	14.5%	33	8.3%
	4	14	4.9%	8	6.8%	22	5.5%
	5 or more	22	7.8%	17	14.5%	39	9.8%
GP HOME VISITS	0	240	84.8%	97	82.9%	337	84.3%
	1	34	12.0%	14	12.0%	48	12.0%
	2 or more	9	3.2%	6	5.1%	15	3.8%
CONTACTS WITH PRACTICE NURSE	0	252	89.0%	98	83.8%	350	87.5%
	1 or more	31	11.0%	19	16.2%	50	12.5%
DIFFERENT MEDICATIONS PRESCRIBED	0	101	35.7%	32	27.4%	133	33.3%
	1	74	26.1%	32	27.4%	106	26.5%
	2	44	15.5%	17	14.5%	61	15.3%
	3	31	11.0%	16	13.7%	47	11.8%
	4 or more	33	11.7%	20	17.1%	53	13.3%
REFERRALS BY GPS	0	230	81.9%	90	77.6%	320	80.6%
	1 or more	51	18.1%	26	22.4%	77	19.4%
MISSED APPOINTMENTS [b]	0	249	88.0%	80	68.4%	329	82.3%
	1 or more	34	12.0%	37	31.6%	71	17.8%

a. Chi square = 21.732 df 5 p=.001

b. Chi square = 20.481 df 1 p=.000 (Continuity correction)

Table 7.13 shows that the follow up sample tended to use more primary health care resources in terms of contacts with GPs (p<.001) and missed appointments (p<.001) than those patients not included in the follow up sample. There were no differences between responders and non-responders in the proportion of patients who attended the health centre. No differences were detected on the secondary health care contacts.

The larger workload associated is likely to be partly attributed to the length of time patients were housed in the area after registration with the health centre. Not surprisingly, the follow up sample resided longer in the practice area than the non-follow up sample (2.93 months compared to 2.03 months; t=-4.013 df398 p<.000).

Health advocate workload

Table 7.14: Family health worker support for the follow up and non-follow up samples (intervention groups only)

		FOLLOW UP STATUS				TOTAL INTERVENTION GROUP (n=151)	
		Non-follow up sample (n=176)		Follow up sample (n=75)			
		n	%	n	%	n	%
Rating of how much support the FHW has given the patient [a]	Registration only	11	7.1%	1	1.3%	12	5.2%
	Registration and health assessment	19	12.3%	4	5.3%	23	10.0%
	1 or 2 additional contacts	95	61.3%	20	26.7%	115	50.0%
	3 > 6 contacts	21	13.5%	19	25.3%	40	17.4%
	6 or more contacts	9	5.8%	31	41.3%	40	17.4%

a. Chi square = 67.465 df 4 p=.000

A greater proportion of patients in the follow up sample also had a higher level of contact with the health advocate; 67% had 3 or more contacts with the health advocate compared with 20% of the non-follow up sample (p<.000) (table 7.14). Analysis was also performed to compare samples on actual contacts with the health advocate (using the method to compute the number of individual contacts; see box 6.1, chapter 6). The non-follow up sample had less contacts initiated by the health advocate (mean = 1.74) compared to the follow up sample (mean = 3.46) (CI difference 0.88 to 2.55; t=-4.07 df96.96 p<.000). The non-follow up sample also initiated less contacts with the health advocate (mean = 1.06) compared to the follow up sample (mean = 6.00) (CI difference 3.13 to 6.74; t=-5.45 df83 p<.000). The proportionate contacts method (box 6.2, chapter 6) showed similar results.

Summary

Between group differences were detected in two variables: the intervention group registered by the health advocate tended to be significantly younger than the self registered intervention group (although the lower confidence interval was close to zero) and a greater proportion of the self registered group had contact with a social worker at baseline.

Statistically, the utilisation of services between the three research groups were comparable, but the data suggests that there may be between group differences in the hypothesised direction similar to those found within the full data set.

The follow up sample tended to use more primary health care resources in terms of contacts with GPs, the health advocate and missed appointments than those patients not included in the follow up sample. This may be partly explained by the length of time patients reside in the practice area; follow up respondents on average tended to spend a longer time in the area.

IMPACT OF THE HEALTH ADVOCACY INTERVENTION ON HEALTH RELATED QUALITY OF LIFE OUTCOMES

Having now addressed the implications of the attrition on the follow up sample, the workload associated with the follow up sample and the comparability of the three research groups in the follow up sample at baseline, this section will continue to assess the impact of the health advocacy intervention on health related quality of life outcomes. The between group differences for each instrument will be looked at separately, starting with the baseline score, the change scores and the effect sizes. Finally, multivariate analyses will be conducted for each outcome measure, controlling for the potential influence of baseline differences and other potential confounders.

Nottingham Health Profile (NHP)

Concerns about skewed distributions particularly on the social isolation, pain and physical mobility NHP dimensions at baseline, require that the data are transformed using the square root (including log and anti-log transformations) and squared

Table 7.15: Mean baseline NHP scores for follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self		INTERVENTION GROUP (FHW	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Emotional distress [a]	40.30	29.86	54.71	31.17	57.30	31.53
Social isolation [b]	21.13	27.59	49.33	40.90	34.79	31.87
Sleep	45.94	30.53	52.39	36.41	50.70	34.47
Energy	33.87	39.23	48.47	38.62	40.83	34.81
Pain	17.35	29.04	5.420	14.46	16.10	24.38
Physical mobility	11.82	18.24	2.013	4.266	9.276	15.30

A high score denotes high distress.

The highest possible score for each dimension is 100 and the lowest is 0.

[a] Analysis of variance (F=3.241 df 116 p<.043): A significant difference was found (p<.05) Bonferonni test between the control group and the FHW registered intervention group

[b] Analysis of variance (F=5.142 df 116 p<.007): A significant difference was found (p<.01) Bonferonni test between the control group and the self registered intervention group

transformation techniques. The data were analysed in raw and transformed forms and the results were identical; for ease of understanding un-transformed data are presented.

Baseline NHP scores for follow up respondents were not comparable across groups on two of the six dimensions. Table 7.15 shows that those respondents in the intervention group registered by the health advocate had significantly more emotional problems than the control group at baseline (mean difference = 17.0; CI difference 0.33 to 33.66; p<.05 indicated by the Bonferroni test). Those who self registered in the intervention group were significantly more socially isolated than the control group subjects (mean difference = 28.2; CI difference 6.61 to 49.79; p<.01 indicated by the Bonferroni test).

Table 7.16: Differences between groups on mean NHP change scores from baseline to 3 month follow up

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self		INTERVENTION GROUP (FHW	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Emotional distress [a]	-5.34	40.7	11.08	21.95	20.55	30.32
Social isolation [b]	-7.30	32.0	17.24	34.49	1.553	29.46
Sleep [c]	3.52	34.1	15.67	26.15	21.12	33.45
Energy	-.3294	42.6	12.47	32.07	10.02	35.39
Pain	2.36	17.2	.9871	5.854	7.551	19.31
Physical mobility	3.04	10.4	.9957	4.936	4.157	11.97

A positive change score denotes improvement ie a reduction in distress

[a] Analysis of variance (F=6.182 df 116 p=.003): A significant difference was found (p<.01) Bonferonni test between the control group and the FHW registered intervention group

[b] Analysis of variance (F=4.101 df 116 p=.019): A significant difference was found (p<.05) Bonferonni test between the control group and the self registered intervention group

[c] Analysis of variance (F=3.045 df 116 p=.05): A significant difference was found (p<.05) Bonferonni test between the control group and the FHW registered intervention group

The intervention group registered by the health advocate improved significantly more than the control group on emotional distress (mean difference = 25.89; CI difference 7.96 to 43.83; p<.01 indicated by the Bonferroni test) and sleep (mean difference = 17.6; CI difference 0.18 to 35.02; p<.05 indicated by the Bonferroni test) (table 7.16). The self registered intervention group improved significantly more than the control group on social isolation (mean difference = 24.55; CI difference 3.67 to 45.43; $p<.05$ indicated by the Bonferroni test).

Table 7.17: Statistically significant differences in NHP scores for each group between baseline assessment and follow up

	GROUP		
	Control Group	Intervention group	
		Self registered	FHW registered
	n=42	n=22	n=53
Nottingham Health Profile Dimension			
Emotion	ns	*	***
Social Isolation	ns	*	ns
Sleep	ns	*	***
Energy	ns	ns	*
Pain	ns	ns	**
Physical Mobility	*	ns	*

Wilcoxon signed-rank test for matched pairs and T-tests (2-tailed) for paired samples;
significant differences between assessment at time one and assessment at time two are indicated by
* $p< .05$, **$p<.01$, ***$p<.001$

Table 7.17 shows the significant changes from baseline to three month follow up in each group, after the application of both parametric and non-parametric tests (results were identical using either test). The intervention group registered by the health advocate improved from baseline to follow up, in all the NHP dimensions except social isolation. The self registered group made statistically significant improvements in the emotion, social isolation and sleep dimensions at follow up. This contrasts with the control group which showed no statistically significant improvements except on the physical mobility dimension.

The follow up scores for each group are shown in table 7.18 and these are compared to the weighted normative data. All groups have a much poorer health status than a sample from the general population but mean scores are closer than the baseline scores for the whole homeless sample at baseline (see table 5.5, chapter 5).

Table 7.18: Mean follow up NHP score for each group compared to NHP reference values

	CONTROL GROUP (n=42)	INTERVENTION GROUP (self registered)(n=22)	INTERVENTION GROUP (FHW reg)(n=53)	NHP reference values (Hunt & McKenna, 1991)
Emotional Reactions	42.0953	44.3143	36.8374	16.7000
Social Isolation	28.6167	32.0905	32.8204	6.9000
Sleep	42.5337	36.7145	29.5776	21.6000
Energy	34.2564	36.0000	30.8078	15.4000
Pain	13.4431	6.6323	7.8588	4.7000
Physical Mobility	9.4000	2.8736	5.0810	3.7000

Statistical testing is not possible as no standard deviations have been published for the normative data

Effect sizes were calculated as a more rigorous test of these changes. Usually effect sizes are interpreted using Cohen's (1977) benchmarks but Kazis (1989) argues that a classification should be developed for individual health status instruments, where the maximum effect size for a particular measure is the inverse of the coefficient of variation, where the mean value of a scale at baseline is divided by its' standard deviation at baseline; this is the largest possible effect size. Each observed effect size can then be interpreted in the context of a maximum effect size. Interpretations of this data are made in light of this maximum effect size and the 20%, 40%, and 80% benchmarks which are calculated for each dimension on the NHP (table 7.19).

Table 7.19: Effect size classifications for the Nottingham Health Profile in the present study

	Effect sizes			
	Small 20%	Medium 40%	Large 80%	Maximum effect size
Emotional distress	.32	.65	1.3	1.63
Social Isolation	.20	.39	.79	.98
Sleep	.30	.59	1.18	1.48
Energy	.22	.43	.86	1.08
Pain	.12	.23	.46	.58
Physical mobility	.11	.23	.46	.57

Table 7.20: NHP effect sizes of magnitude of improvement in intervention groups relative to the control group between baseline assessment and follow up [a]

		self registered intervention group vs control group	fhw registered intervention group vs control group
		Effect size	Effect size
NHP DIMENSIONS	Emotional distress	.40	.73
	Social Isolations	.72	.32
	Sleep	.37	.55
	Energy	.33	.28
	Pain	-.24	.16
	Physical mobility	-.29	.11

[a] If the effect size is negative the difference is in the undesired direction ie the control group achieves a greater improvement in life fulfilment

The effect sizes relative to the control group suggest that intervention effects are present in the emotional distress and social isolation dimensions. There were no large intervention effects detected by the NHP. Moderate effect sizes comparative to the control group, using the benchmarks in table 7.19, were detected on the emotional distress (e.s.= 0.73) dimension for the intervention group registered by the health advocate and social isolation (e.s.= 0.72) dimension for the self registered intervention group. All other effects are considered small including the sleep dimension.

The baseline non-equivalence cannot be ruled out as an explanation for these effects. The interpretation of these results is simplified when depicted in graphs (figure 7.1 to 7.6). The baseline non-equivalence on the emotional distress (figure 7.2) and social isolation (figure 7.3) dimensions calls into question the subsequent differences detected over time. The baseline non-equivalence suggests that variables other than the experimental condition cannot be ruled out as contributing to the differences between groups. Furthermore, there were no statistically significant differences between the three groups on any of the dimensions at follow up. The only clear cut effect (baseline equivalence and a significant difference detected over time) was the intervention group registered by the health advocate who had significantly reduced sleeping problems compared to the control group ($p<.05$)(figure 7.1). However the corresponding effect size comparative to the control group was small. There was a crossover effect (Cook and Campbell, 1979) on emotional distress for the intervention group registered by the health advocate depicted in Figure 7.2 which may be more readily interpreted as an intervention effect with a moderate effect size (0.73). Regression towards the mean could account for both groups improving over time, but cannot account for the proactively registered intervention group starting out worse and ending up better than the control group.

Fig. 7.1: Mean NHP sleep scores at baseline and follow up

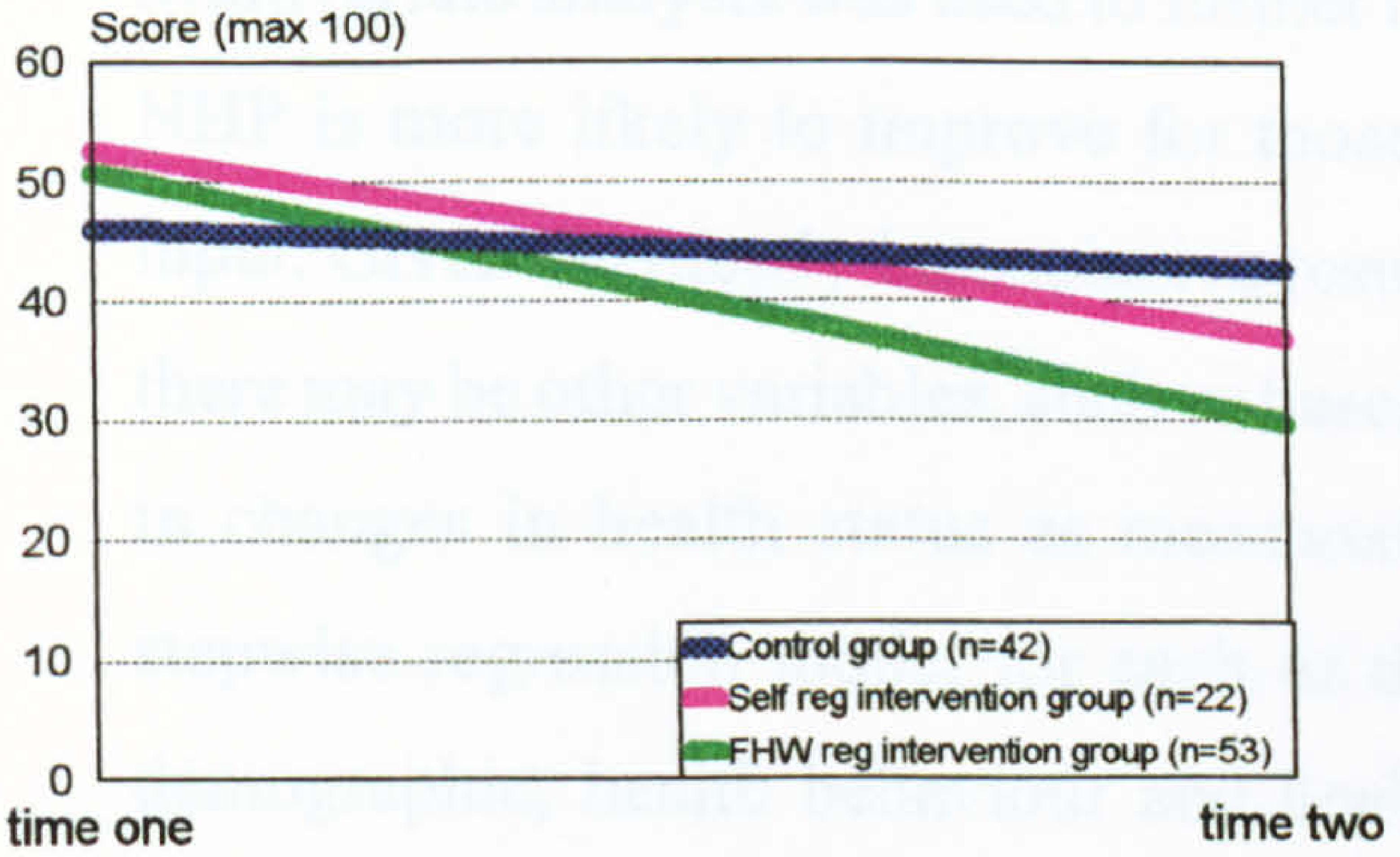


Fig 7.2: Mean NHP emotional reactions scores at baseline and follow up

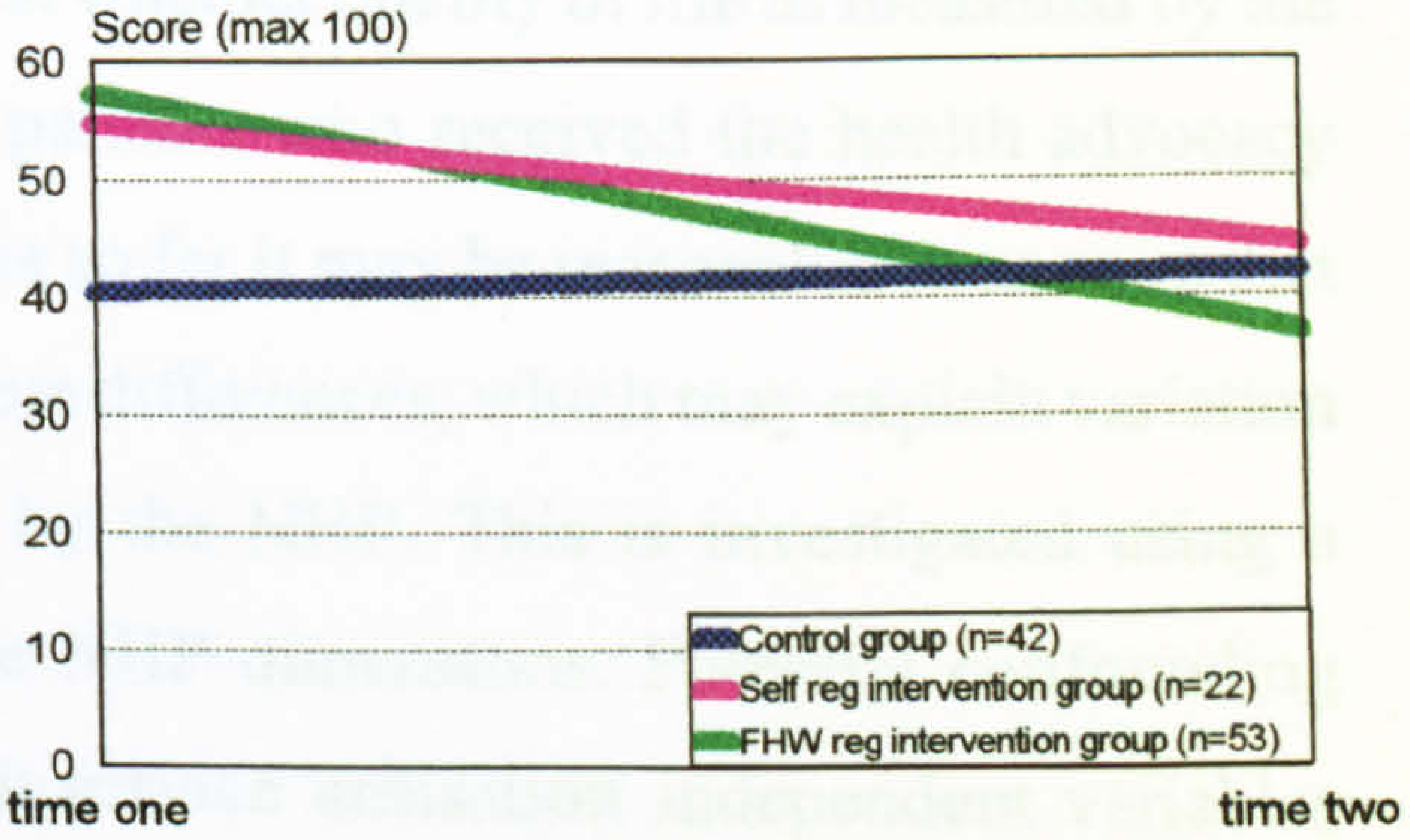


Fig 7.3: Mean NHP social isolation scores at baseline and follow up

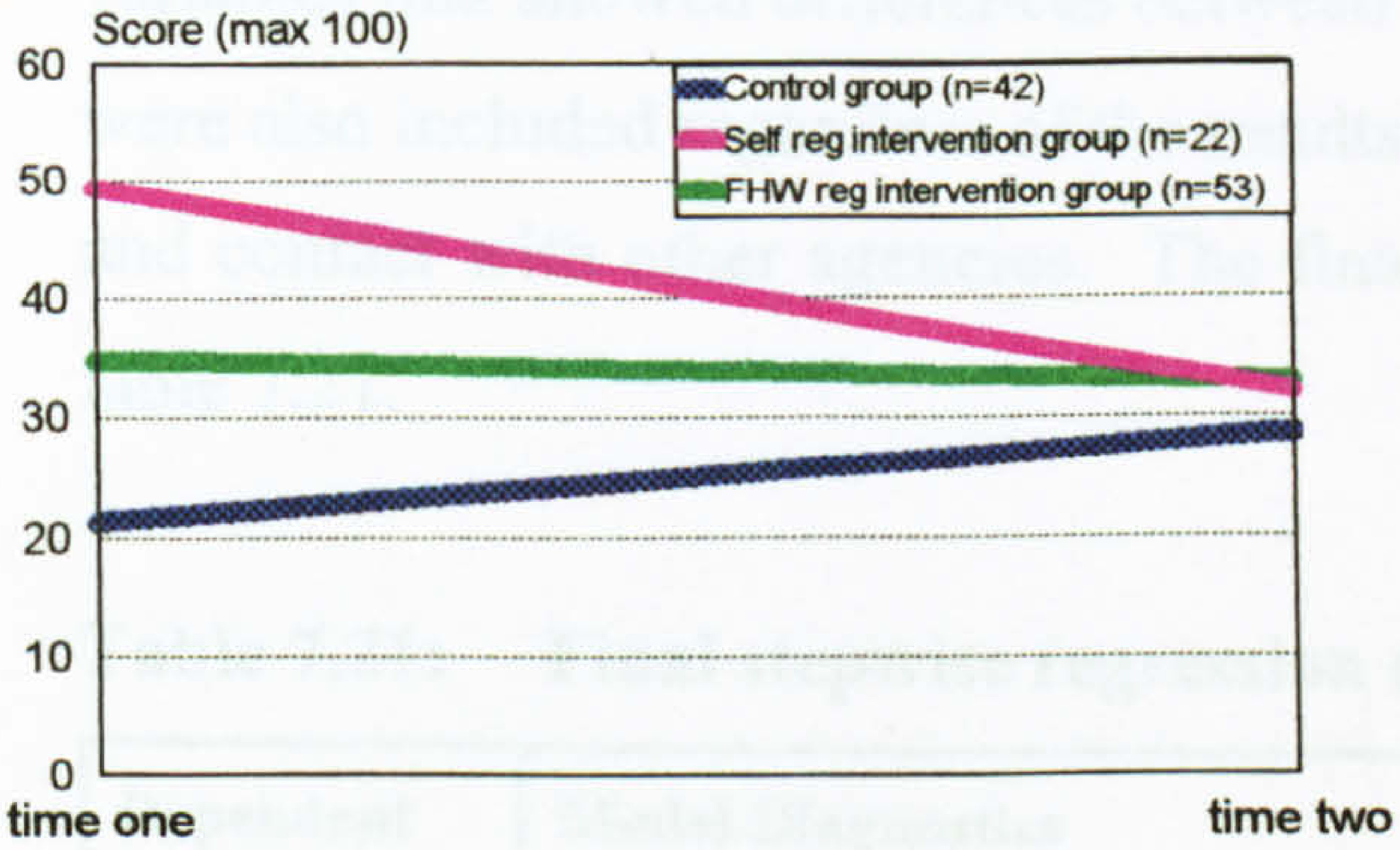


Fig 7.4: Mean NHP energy scores at baseline and follow up

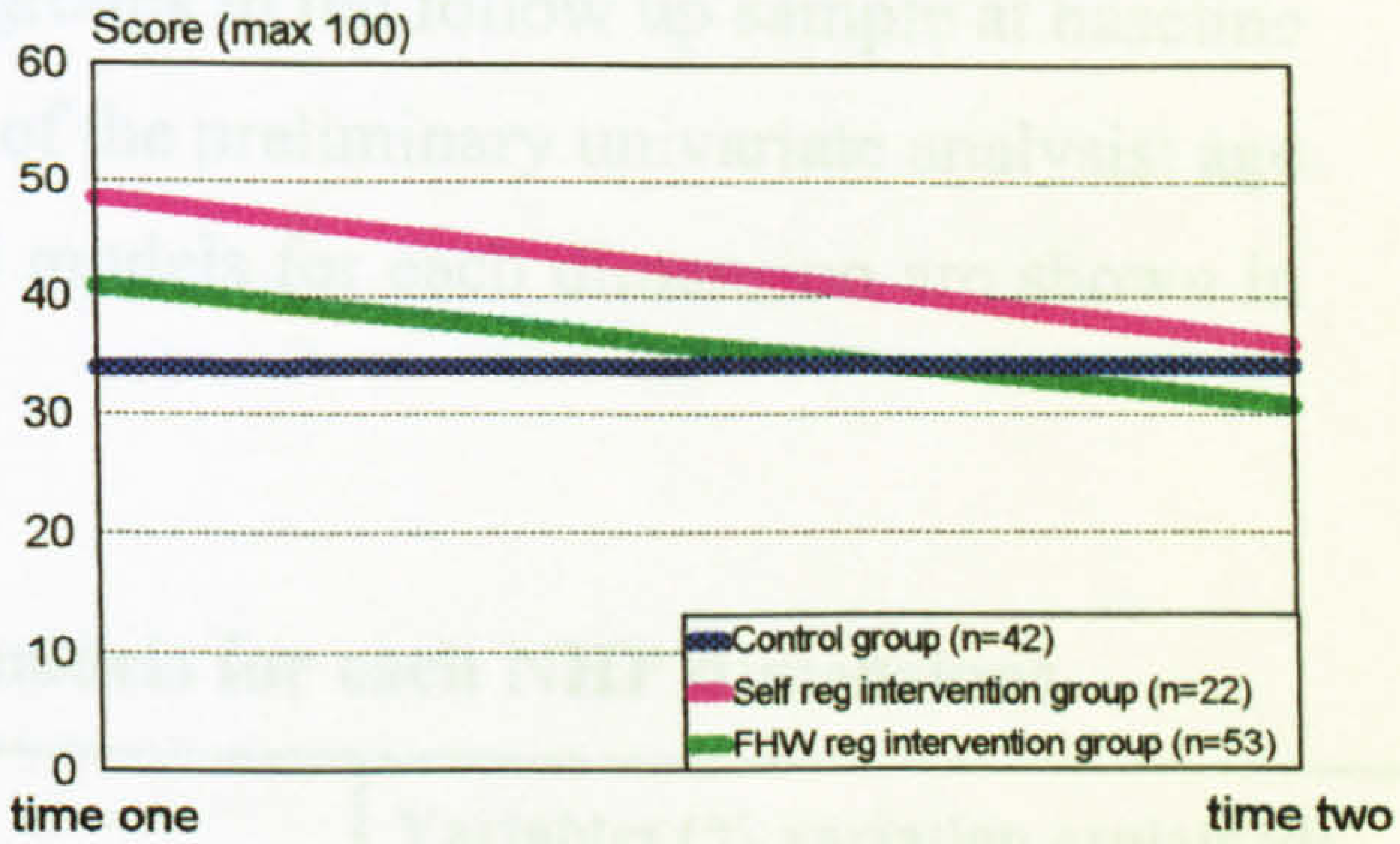


Fig 7.5: Mean NHP pain scores at baseline and follow up

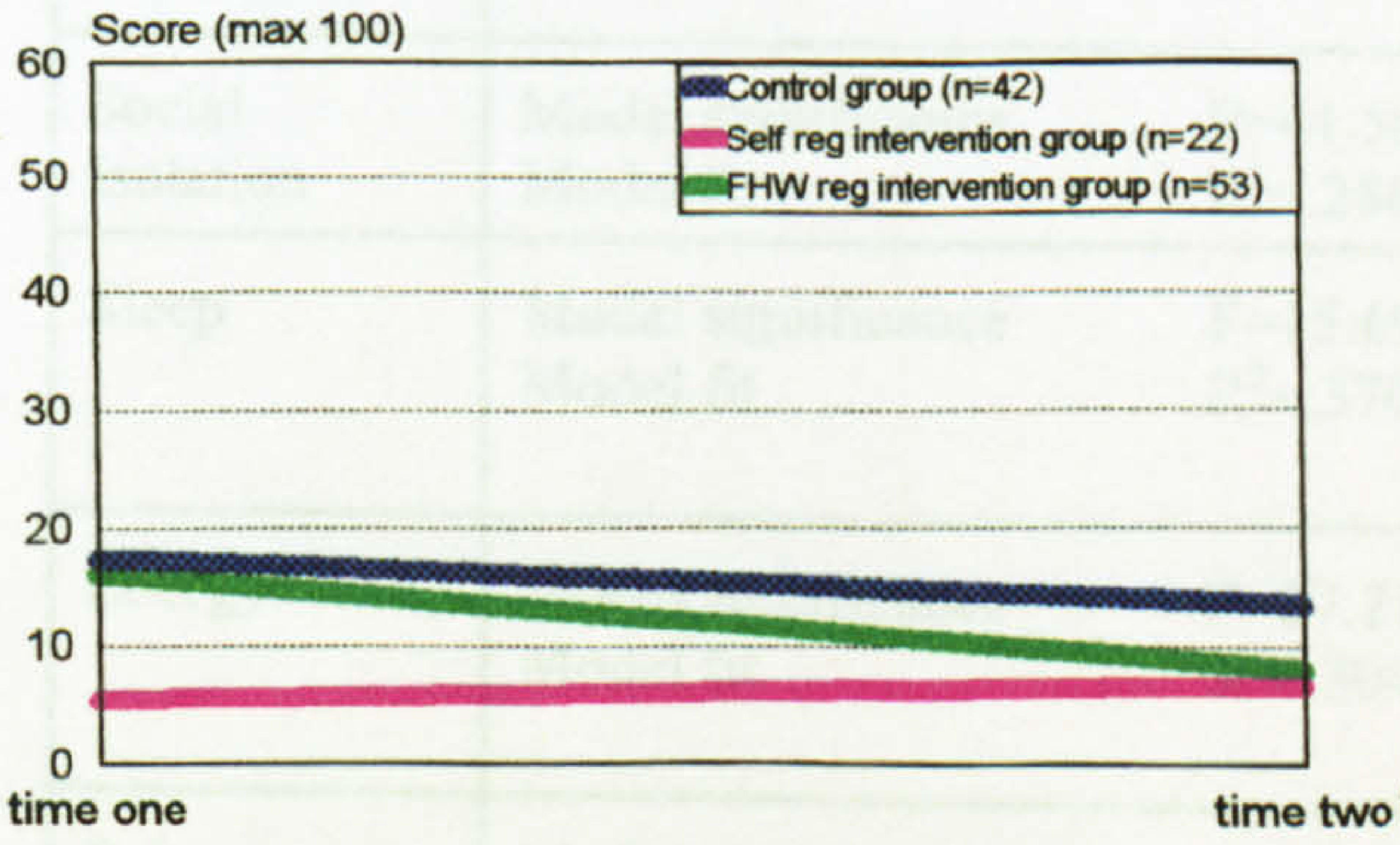
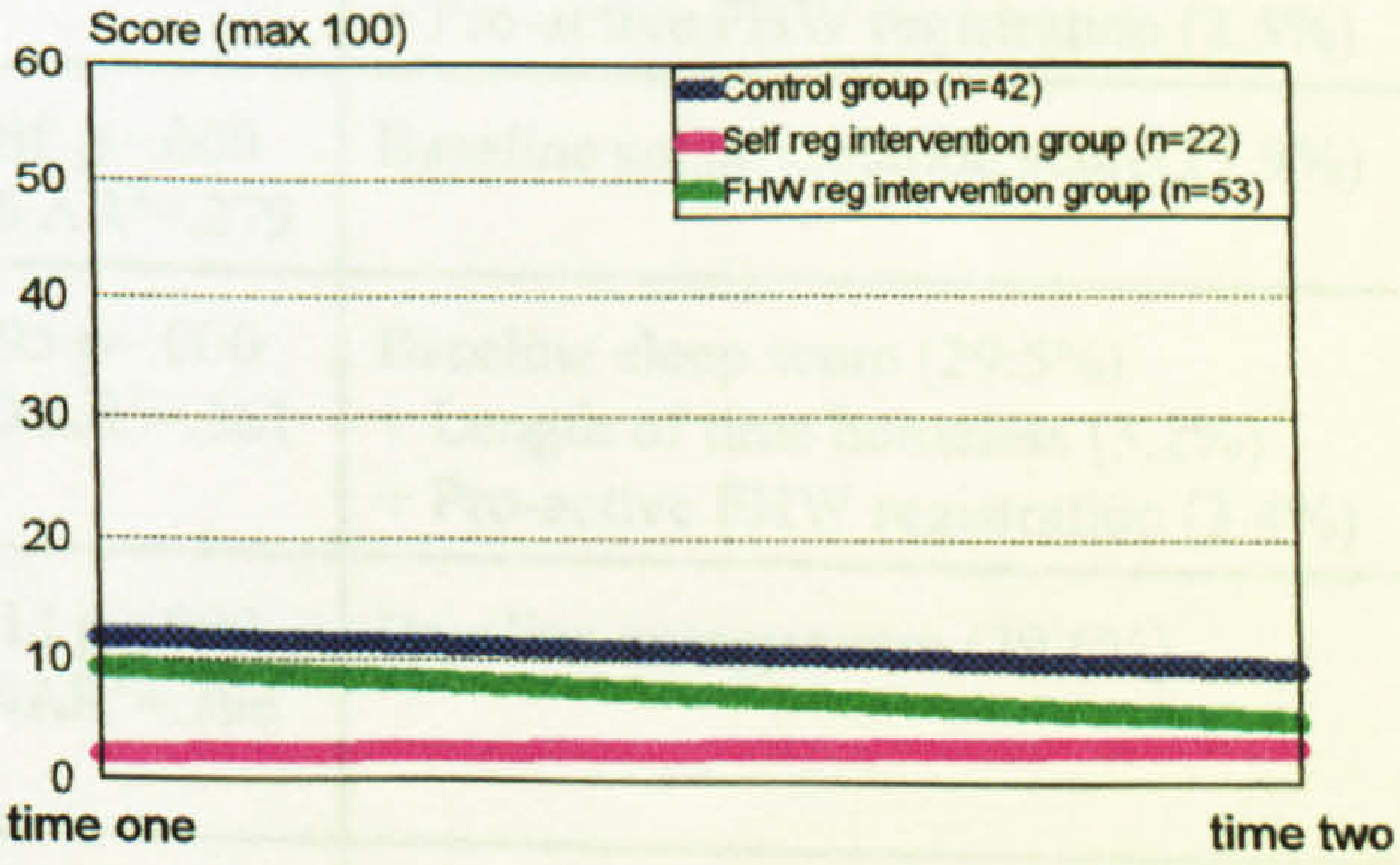


Fig 7.6: Mean NHP physical mobility scores at baseline and follow up



Multivariate analysis

Multivariate analysis was used to further test whether quality of life as measured by the NHP is more likely to improve for those patients who received the health advocacy input. Given the mostly inconclusive results so far it may be reasonable to assume that there may be other variables, such as baseline differences, which may explain variation in changes in health status as measured by the NHP. This is investigated using a stepwise regression model for each of the NHP dimensions. Potential confounding demographic, health behaviour and health service utilisation independent variables which showed univariate differences for each NHP dimension were entered into a stepwise regression analysis with type of intervention and baseline NHP scores to explain the quality of life of the follow up sample of homeless adults (n=117). Those variables that showed differences between groups in the follow up sample at baseline were also included regardless of the results of the preliminary univariate analysis: age and contact with other agencies. The final models for each dimension are shown in table 7.21.

Table 7.21: Final stepwise regression models for each NHP dimensions

Dependent variables: NHP change scores	Model Diagnostics		Variables (% variation explained)
Emotional distress	Model significance Model fit	$F=19.025$ $p=.000$ $R^2=.419 AR^2=.398$	Baseline emotion score (33.5%) + Gender (3.8%) + Pro-active FHW registration (2.5%)
Social Isolation	Model significance Model fit	$F=41.588$ $p=.000$ $R^2=.286$ $AR^2=.279$	Baseline social isolation score(27.9%)
Sleep	Model significance Model fit	$F=15.695$ $p=.000$ $R^2=.370$ $AR^2=.361$	Baseline sleep score (29.5%) + Length of time homeless (3.2%) + Pro-active FHW registration (3.4%)
Energy	Model significance Model fit	$F=37.213$ $p=.000$ $R^2=.304 AR^2=.296$	Baseline energy score (29.6%)
Pain	Model significance Model fit	$F=39.519$ $p=.000$ $R^2=.285$ $AR^2=.278$	Baseline pain score (27.8%)
Physical mobility	Model significance Model fit	$F=43.364$ $p=.000$ $R^2=.307$ $AR^2=.300$	Baseline physical mobility score (30%)

The results from the multivariate analysis are consistent with the previous results. The intervention group (health advocate registered) remained in the final stepwise regression models for only two of the six NHP dimensions: emotional reactions and sleep. Change in emotional reactions scores was explained by the baseline score at step one 33.5%, at step two the baseline score and gender together explain 37.3% and finally at step three, being in the intervention group registered by the health advocate explains an additional 2.5%. Change in sleep scores was explained by the baseline score at step one 29.5%, at step two the baseline score and length of time homeless together explain 32.7% and finally at step three, being in the intervention group (registered by the health advocate) explains an additional 3.4%. Greater change is associated with all of these independent variables.

Nottingham Health Profile: Conclusion

Baseline equivalence was found between the groups on four NHP items: sleep, energy, pain and physical mobility. Differences at baseline were detected between research groups on two dimensions: social isolation and emotional reactions. One possible explanation for these differences may be the variations in selection for each group. An attempt to 'capture' or eliminate the potential biasing of this type of selection effect, was done by analysing separately the intervention group by the different modes of registration. Remember that the control group and self registered intervention group are 'selected' in the same way and would be expected to be comparable at baseline. Table 7.15 shows that this was not the case; the control group reported themselves to be less socially isolated than the self registered intervention group. The intervention group, on the other hand was registered pro-actively by the health advocate therefore may be expected to differ from the control group.

Bivariate and multivariate analysis, which controlled for baseline differences, were consistent in detecting intervention effects on the sleep and emotional reactions dimensions. The analysis of effect sizes revealed that the effects for improvements in sleep were "small" and "moderate" for the improvements in emotional problems relative to the control group.

Over the three month follow up period, within group changes indicated that it was possible to detect a positive change in this homeless population at the 5% level of significance in all NHP items in one or more of the research groups.

Life Fulfilment Scale (LFS)

The life fulfilment scale (see appendix V) results are analysed in the subsequent pages. The results of baseline, change scores and effect sizes for the ten LFS items, 2 aggregated subscales and overall scores are shown in tables 7.22 to 7.31. and the multivariate analysis in tables 7.32 to 7.39.

Table 7.22: Baseline mean LFS item importance scores for follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)		INTERVENTION GROUP (FHW	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
A good family life	3.81	.45	3.73	.55	3.75	.73
Having close friends	3.52	.74	3.45	.74	3.42	.72
A happy marriage	3.26	1.06	3.50	.80	3.51	.93
Spare time activities	3.48	.55	3.27	.63	3.49	.67
Being in good health	3.86	.42	3.86	.35	3.87	.39
Being happy with yourself	3.79	.42	3.50	.86	3.62	.63
A secure job and stable job [a]	3.36	.76	2.59	.73	3.13	1.09
Being happy where you live	3.59	.74	3.68	.48	3.64	.59
Housing that meets your needs	3.88	.33	3.64	.49	3.77	.47
Having enough money	3.36	.66	3.14	.71	3.40	.74

4 = very important
3 = fairly important
2 = not very important
1 = not at all important

[a] Analysis of variance (F=5.004 df 116 p<.008): A significant difference was found (p<.05 Bonforonni test) between the control group and self registered intervention group

Table 7.22 shows that the baseline mean importance levels lie between fairly important (score 3) and very important (score 4) for all items in all research groups. The level of importance attached to each of the LFS items was comparable in all groups for all items except the job item, where the self registered intervention group compared to that for the control attached less importance to this item (p<.01 Bonferroni test).

Table 7.23: Mean baseline LFS item satisfaction scores for follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
A good family life	2.57	1.02	2.23	1.07	2.45	1.17
Having close friends	2.88	.99	2.77	.92	2.81	.90
A happy marriage	1.57	1.63	1.50	1.60	2.06	1.70
Spare time activities	2.50	.80	2.55	.96	2.32	.83
Being in good health	2.29	.77	2.27	.88	2.25	.78
Being happy with yourself	2.57	.83	2.05	.90	2.13	.94
A secure job and stable job	.29	.74	.23	.75	.19	.68
Being happy where you live	2.38	1.10	2.33	.91	2.32	.83
Housing that meets your needs	2.37	.99	2.45	.91	2.23	.99
Having enough money	2.17	.91	2.14	.77	1.96	.83

4 = very satisfied
3 = satisfied
2 = dissatisfied
1 = very dissatisfied
0 = does not apply (marriage & job item)
Analysis of variance: no significant differences between groups

In all items except marriage and job, baseline satisfaction levels mostly lie between dissatisfied and satisfied. There were no significant differences detected between groups on any of the 10 items. The mean satisfaction with the relationship item is reduced due to a high proportion (36 %) of respondents who rated the item 'does not apply' and therefore score zero. Likewise, the mean satisfaction with the job item is also reduced due to 89% of individuals responding with 'does not apply'.

Table 7.24: Mean baseline LFS item discrepancy scores for follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
A good family life	5.4762	4.0859	6.5000	4.0562	5.7170	4.4866
Having close friends	3.8095	3.6240	4.1364	3.3988	3.9245	3.1246
A happy marriage	2.5238	4.0258	2.8182	3.9837	2.5472	4.0075
Spare time activities	5.1190	2.7248	4.7273	3.3691	5.8679	3.2642
Being in good health	6.5476	2.9401	6.6818	3.4694	6.8491	3.2368
Being happy with yourself	5.4048	3.2614	7.0909	4.0345	6.6792	3.7456
A secure job and stable job	.9048	2.4773	.3636	1.3290	.6604	2.4095
Being happy where you live	5.7750	4.3764	6.2857	3.5936	6.1132	3.2265
Housing that meets your needs	6.3659	4.0172	5.5455	3.3342	6.6604	3.8076
Having enough money	6.0238	3.1428	6.0909	3.2647	6.9434	3.3935

A high score denotes low fulfilment.
The highest possible score for each item is 12 and the lowest is 0.

Analysis of variance: no significant differences between groups on any item

The baseline discrepancy scores for each item (see appendix V for method of scoring) are presented in table 7.24. A high score denotes low fulfilment, ie a larger gap between the importance attached to an item compared to the satisfaction attained in this item and a low score denotes higher fulfilment, ie, a smaller gap. Most items indicate lower fulfilment in this population. No significant differences between the three groups at baseline were detected.

Table 7.25: Mean baseline discrepancy subscale and overall scores for follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Personal subscale	28.8810	13.2485	31.9545	13.3612	31.5849	12.6285
Material subscale	18.3750	9.0403	17.9048	7.5888	19.7170	7.1693
Overall life fulfilment	48.8750	18.5737	49.6667	15.7364	51.9623	16.4117

A high score denotes low fulfilment.

Analysis of variance: no significant differences between groups

The baseline discrepancy scores (table 7.25) for each group show a similar picture of low life fulfilment, in personal and material aspects. No statistically significant differences were detected between groups.

The data presented in table 7.26 shows changes in item discrepancy scores over the 3 month follow up period. Both intervention groups improved on all items (positive scores) whereas the control group deteriorated on five items (negative scores).

Table 7.26: Mean discrepancy item change scores from baseline to 3 months follow up

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
A good family life [a]	-.1429	4.8367	1.7619	2.4270	2.0189	3.9589
Having close friends	-.5476	3.6573	.2273	3.7662	.0000	4.1278
A happy marriage	-.095	4.6055	1.4545	4.7882	1.3585	4.5872
Spare time activities	.0238	4.2512	.2273	3.9028	1.6604	3.8727
Being in good health	.2381	3.3262	1.3182	3.9807	1.7736	3.8061
Being happy with yourself [b]	.0238	3.9785	1.9091	2.8437	3.1132	3.4622
A secure job and stable job	.2619	3.5204	.0455	1.7587	.1509	2.4682
Being happy where you live [c]	-.1500	5.1018	3.3500	4.6935	2.7736	4.5134
Housing that meets your needs	1.000	4.9900	2.2273	5.4330	2.8302	5.2394
Having enough money [d]	-.8095	3.9954	.2727	4.3881	1.1698	3.7964

* A positive discrepancy item change score denotes improvement
Analysis of variance

a. F=3.521 df 116 p=.033 ; Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05) compared to the control group

b. F=8.858 df 116 p=.000 ; Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05)compared to the control group

c. F=5.52 df 116 p=.005 ; Bonferonni test significantly more improvement in both intervention groups (p<.05) compared to the control group

d. F=2.894 df 116 p=.05 ; Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05)compared to the control group

The intervention group registered by the health advocate improved significantly more than the control group on the items: "a good family life" (mean difference =2.16; CI difference 0.11 to 4.22; p<.05 indicated by the Bonferroni test), "being happy with yourself" (mean difference =3.09; CI difference 1.30 to 4.87; p<.001 indicated by the Bonferroni test), "being happy where you live" (mean difference =2.92; CI difference 0.50 to 5.35; p<.05 indicated by the Bonferroni test) and "having enough money" (mean difference = 1.98; CI difference 0.02 to 3.98; p<.05 indicated by the Bonferroni test). Those who self registered in the health worker group improved significantly more than the control group on one item: "being happy where you live" (mean difference =3.50; CI difference 0.33 to 6.67; p<.05 indicated by the Bonferroni test). Changes in fulfilment in all other items, except job item, were greater in both intervention groups compared to the control group, but the results failed to reach statistical significance.

It is interesting to note that the intervention group registered by the health advocate improves most on the five items which were rated most important (although in a different order; "being happy with self", "having housing which meets your needs", "being happy where you live", "a good family life" and "being in good health") (see table 7.22).

Table 7.27: Mean discrepancy subscale and overall change scores from baseline to 3 months follow up

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Personal subscale [a]	-.5000	16.6605	7.2381	11.4582	9.9245	12.6550
Material subscale [b]	-.0250	11.3035	6.4500	12.8492	6.7736	10.4764
Overall life fulfilment [c]	.2500	23.6445	13.30	18.7760	16.85	20.5112

* A positive discrepancy item change score denotes improvement
Analysis of variance

a. F=6.602 df 116 p=.002: Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05) compared to the control group

b. F=4.634 df 116 p=.012: Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05) compared to the control group

c. F=7.089 df 116 p=.001: Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05) compared to the control group

The intervention groups improved on all three aggregated change scores (table 7.27) whereas the control group achieved minimal changes over the 3 months. Within group variability, indicated by the high standard deviations, was high for both subscales and overall life fulfilment. The intervention group registered by the health advocate improved significantly more than the control group on both personal fulfilment (mean difference = 10.42; CI difference 3.37 to 17.48; p<.05 indicated by the Bonferroni test), material fulfilment (mean difference = 6.80; CI difference 1.09 to 12.51; p<.05 indicated by the Bonferroni test) and the aggregated overall life fulfilment score (mean difference = 16.6; CI difference 5.7 to 27.5; p<.05 indicated by the Bonferroni test). Although there was a trend in the hypothesised direction, the differences between the self registered intervention group and the control group were not statistically significant.

Table 7.28: Statistically significant differences in mean item discrepancy scores for each group between baseline assessment and follow up

	GROUP		
	Control Group	Intervention group	
		Self registered	FHW registered
	n=42	n=22	n=53
A good family life	ns	**	***
Having close friendships	ns	ns	ns
A happy marriage	ns	ns	*
Spare time activities	ns	ns	**
Being in good health	ns	ns	***
Being happy with yourself	ns	**	***
A secure and stable job	ns	ns	ns
Being happy where you live	ns	**	***
Housing that meets your needs	ns	*	***
Having enough money	ns	ns	*

All tests are t-tests (2 tailed) for paired samples: significant differences between assessment at time one and assessment at time two are indicated by * p< .05, **p<.01, ***p<***.001
All significant changes represent improvements in fulfilment

Within group changes were also assessed in table 7.28 by conducting paired t-tests. Striking differences between the control group and the intervention groups are visible. During the course of the study, the most significant change has occurred in the intervention group registered by the health advocate, with significant improvement over the 3 months in eight of the ten items. Those who self registered in the intervention group improved in four areas, compared to the control group who did not improve significantly on any area.

Table 7.29: Statistically significant differences in mean subscale and overall discrepancy scores for each group between baseline assessment and follow up

	GROUP		
	Control Group n=42	Intervention group Self registered n=22	Intervention group FHW registered n=53
Personal subscale	ns	**	***
Material subscale	ns	*	***
Overall fulfilment	ns	**	***

All tests are t-tests (2 tailed) for paired samples: significant differences between assessment at time one and assessment at time two are indicated by * p< .05, **p<.01, ***p<.001
All significant changes represent improvements in fulfilment.

Table 7.30: Effect size classifications for the Life Fulfilment Scale in the present study

	Effect sizes			
	Small 20%	Medium 40%	Large 80%	Maximum
A good family life	0.29	0.58	1.69	1.46
Having close friendships	0.23	0.46	0.93	1.16
A happy marriage	0.15	0.29	0.58	0.73
Spare time activities	0.31	0.62	1.23	1.54
Being in good health	0.42	0.84	1.68	2.10
Being happy with yourself	0.34	0.68	1.36	1.72
A secure and stable job	0.06	0.12	0.24	0.32
Being happy where you live	1.22	2.43	4.86	6.08
Housing that meets your needs	0.31	0.63	1.26	1.57
Having enough money	0.97	1.94	3.87	4.84
Personal subscale	0.45	0.90	1.80	2.25
Material subscale	0.44	0.88	1.76	2.18
Overall fulfilment	0.56	1.12	2.23	2.79

As with the NHP maximum and benchmark effect sizes have been calculated for the LFS specific to this study (table 7.30). Twelve of the thirteen LFS outcomes shown in table 7.31 favoured the intervention group in both comparisons. None of the effects for either group, relative to the control group, are classified as large. A moderate effect was present when comparing the intervention group registered by the health advocate with the control group in the items ‘being happy with yourself’ (e.s.=.88). All other effect sizes are considered small or less.

Table 7.31: Life fulfilment scale effect sizes of magnitude of improvement in intervention groups relative to the control group between baseline assessment and follow up [a]

		self registered intervention group vs control group	fhw registered intervention group vs control group
		Effect size	Effect size
LFS ITEMS	A good family life	.53	.50*
	Having close friends	.22	.16
	A happy marriage	.39	.34
	Spare time activities	.07	.55
	Being in good health	.34	.50
	Being happy with yourself	.52	.88**
	A secure job and stable job	-.11	-.05
	Being happy where you live	.77*	.74*
	Housing that meets your needs	.33	.46
	Having enough money	.34	.61*
LFS subscales	Personal subscale	.58	.81*
	Material subscale	.62	.79*
LFS overall score	Overall LFS score	.70*	.96*

* <.05, **p<.01 indicates significant differences between groups on outcome change scores (ANOVA; Bonferonni test)

a. If the effect size is negative the difference is in the undesired direction ie the control group achieves a greater improvement in life fulfilment

Multivariate analysis

The joint influence of the variables, taking account of possible inter-relationships among them and controlling for other variables, is investigated using multiple regression. Multivariate analysis was used to further test whether improvement in life fulfilment is greater for those patients who received the health advocacy input. This is investigated using a stepwise regression model for each of the LFS subscales. Preliminary univariate analyses was performed to determine which of the variables of interest are related to life fulfilment on their own. Potential confounding demographic, health behaviour and health service utilisation independent variables which showed univariate differences for each score were then entered into a stepwise regression analysis with type of intervention to explain the quality of life of the follow up sample of homeless adults (n=117). As with previous analyses those variables that showed differences between groups in the follow up sample at baseline (age and contact with other agencies) were also included, regardless of the results of the preliminary univariate analysis.

Dependent variable: personal life fulfilment change score

Table 7.32: Mean personal fulfilment subscale change score for patients with presence or absence of categorical variables listed

Variable	Yes	No	p-value
Female	31.62	28.3	.210
Takes regular medication	31.46	30.32	.648
Long-term illness	33.71	28.32	.024
Frequent user of street drugs	33.35	30.66	.375
Married	37.79	29.22	.018
Single	28.19	34.31	.021
Lives in women's refuge	34.34	29.12	.045
Reason for homelessness - harassment /crime	28.18	31.05	.452
Reason for homelessness - domestic violence	36.92	25.98	.000
Reason for homelessness - health /social reasons	27.07	31.14	.325
Reason for homelessness - family /friends unable / unwilling to continue to accommodate	24.45	32.19	.030 */continued*

/continued White	31.08	27.55	.393
Contact with health visitor & social worker	34.78	30.30	.224
Lives with family /partner	31.53	28.43	.251
Has emotional & / or practical support	29.59	34.41	.025

Table 7.33: Correlation coefficients of personal fulfilment subscale change score with each continuous or scale variable

Variable	**Correlation coefficient**	**p value**
Length of time homeless before registration	.093	.350
Length of time in area	-.003	.976
Primary health care workload (gp+pract nurse)	-.072	.442
Number of cigarettes smoked per day	.124	.187
Number in household (registered with PPHC)	.213	.021
Units of alcohol consumed per week	-.028	.773
Age	0.216	.019

Potential confounding variables ie those which showed univariate differences (gender, reported long term illness, marital status, reason for homelessness, number of cigarettes smoked per day, number in household registered at PPHC and practical and emotional support) were included in the model along with variables that also showed differences between groups at baseline i.e. age and contact with other agencies. Each of these independent variables, including type of intervention and baseline personal fulfilment, were entered into a stepwise regression analysis for explaining the change in personal fulfilment in the follow up sample of homeless adults (n=117).

Using a combination of forward and backward stepwise regression, at each step, the variable chosen for inclusion is that which makes the most extra contribution to the explained variation. This process was repeated until no significant improvement is made by the addition of any other variable, using 0.05 level of significance as a cut off.

In the first regression which assessed changes in personal fulfilment, four variables remained in the final model: baseline personal fulfilment score, intervention group registered by the health advocate; self registered intervention group and gender. Using the Adjusted R^2, this model explained 46.6% of the variance ($F= 17.136$ $p<.0001$).

Table 7.34: Stepwise regression assessing change in personal fulfilment: model one summary

Step	Variables included	Adjusted R2 (%)	Significance of improvement
1	Baseline personal fulfilment	31.1	<0.001
2	Intervention group (fhw reg)	39.3	<0.001
3	Intervention group (self reg)	43.7	<0.001
4	Gender	46.6	<0.001

At step one the baseline personal fulfilment score explains 31.1%, at step two the baseline fulfilment and being in the intervention group registered by the health advocate together explain 39.3%, at step three being in the self registered intervention group explains an additional 4.4% and finally being single explains an additional 2.9%.

Table 7.35: Stepwise regression assessing change in personal fulfilment: the final regression for model one

Variable	Unstandardised regression coefficient	Standard error of regression coefficient
Constant	-28.635	4.564
Baseline personal fulfilment	.660	.106
Intervention group (fhw reg)	12.944	3.210
Intervention group (self reg)	8.904	3.784
Gender	7.418	3.352

The model arrived at, describing the change in personal fulfilment over the three month follow up period, is described as the following: 0.66 (baseline score) + 12.94 (if in FHW registered intervention group) + 8.9 (if in self registered intervention group) + 7.42 (gender) - 28.64.

Alternatively, when this analysis is performed with the dependent variable set as the personal fulfilment score at follow up, the same variables remained in the final model, but only 27.6% of the variance is explained.

Dependent variable: material life fulfilment change score

Table 7.36: Mean material fulfilment subscale for patients with presence or absence of categorical variables listed

Variable	Yes	No	p-value
Female	19.02	18.61	.806
Takes regular medication	19.63	18.61	.511
Long-term illness	19.33	18.69	.671
Frequent user of street drugs	21.06	18.27	.192
Married	21.86	18.18	.077
Single	18.06	19.78	.296
Lives in family hostel	22.31	17.75	.002
White	19.34	15.30	.042
Contact with health visitor & social worker	15.56	19.17	.188
Lives with family /partner	19.87	16.35	.034
Has emotional & / or practical support	19.23	17.07	.205

Table 7.37: Correlation coefficients of material fulfilment subscale with each continuous or scale variable

Variable	Correlation coefficient	p value
Length of time homeless before registration	-.046	.647
Length of time in area	-.112	.234
Primary health care workload (gp+pract nurse)	-.136	.152
Number of cigarettes smoked per day	-.041	.667
Number in household (registered with PPHC)	.047	.619
Units of alcohol consumed per week	.124	.210
Age	-.027	.778

Potential confounding variables ie those which showed univariate differences (frequent use of street drugs, marital status, type of temporary accommodation [living in family hostel], ethnic group, living situation and length of time in area) were included in the model along with variables that also showed differences between groups at baseline: age and contact with other agencies. Again, each of the independent variables, including type of intervention and baseline material fulfilment, were entered into a stepwise regression analysis for explaining the change in material fulfilment in the follow up sample of homeless adults (n=117).

Three variables remained in the final model: baseline material fulfilment score, intervention group proactively registered by the health advocate and intervention group who self registered. Using the Adjusted R^2, this model explained 33.1% of the variance (F= 19.473 p<.0001).

Table 7.38: Stepwise regression assessing change in material fulfilment: model one summary

Step	**Variables included**	**Adjusted R2 (%)**	**Significance of improvement**
1	Baseline material fulfilment	28.9	<0.001
2	Intervention group (fhw reg)	30.2	<0.001
3	Intervention group (self reg)	33.1	<0.001

At step one the baseline material fulfilment score explains 28.9%, at step two the baseline material fulfilment score and being in the intervention group registered by the health advocate together explain 30.2% and finally at step three being in the self registered intervention group explains an additional 2.9%.

Table 7.39: Stepwise regression assessing change in material fulfilment: the final regression for model one

Variable	**Unstandardised regression coefficient**	**Standard error of regression coefficient**
Constant	-14.291	2.592
Baseline material fulfilment	.776	.115
Intervention group (fhw reg)	5.757	1.988
Intervention group (self reg)	6.223	2.592

The change in material fulfilment over the three month follow up period is explained by 0.78 (baseline score) + 5.76 (if in FHW registered intervention group) + 6.22 (if in self registered intervention group) - 14.29.

Life fulfilment scale: Conclusion

Baseline equivalence was found between the groups: all three research groups attached similar importance to the ten different aspects of life fulfilment and experienced similar levels of dissatisfaction at baseline. Over the three month follow up period, it was possible to detect within group positive changes in this homeless population at the 5% level of significance in all LFS items except the friendship and job items.

The proactively registered intervention group gained significantly more fulfilment than the control group, from baseline to follow up on four items (family life, being happy with yourself, area of residence and money), on both subscales and on overall score. Further analysis has revealed that the effects resulted from changes in satisfaction with life rather than changes in the importance attached to these different aspects of life. Although these improvements were statistically significant, all effects were of a size conventionally rated as "small" except that associated with 'being happy with self' item which showed a positive "moderate" effect size.

Intervention effects on the personal and material subscales were detected using multivariate analysis. Allocation to either intervention group predicted improvements in both personal and material fulfilment. Gender was also a predictor in explaining change in personal fulfilment; females were more fulfilled.

Thus the different types of analysis confirm that:

a) intervention effects on personal and material fulfilment were evident for temporarily homeless at three months follow up;
b) greater intervention effects were more likely in females and;
c) overall intervention effects tended to be small.

Faces Scale

Subjects were also asked a global question about how they felt about their life as a whole (see appendix VI). At intake to the study the mean score was 4.2 (the middle face, with no expression) indicating also that participants felt between mixed and mostly dissatisfied as a whole and 43% of respondents rated themselves on the 'terrible' end of the scale (face 5, 6 or 7). No differences were detected between groups. The results were comparable to Solarz (1986) who, also used this delighted-terrible scale on a homeless population in temporary shelter in Michigan, USA (mean score 4.3; sd 1.4).

Table 7.40: Baseline mean Faces Scale for the follow up sample

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Delighted- terrible faces scale[a]	4.03	1.69	4.27	1.83	4.25	1.83

Analysis of variance: no significant difference between groups

a. The faces (see appendix vi) denoted
1= delighted or extremely pleased
2= pleased
3= mostly satisfied
4= mixed
5= mostly dissatisfied
6= unhappy
7= terrible

Table 7.41: Faces Scale mean change scores from baseline to 3 months follow up

	GROUP					
	CONTROL GROUP (n=42)		INTERVENTION GROUP (self registered)(n=22)		INTERVENTION GROUP (FHW reg)(n=53)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Delighted-terrible faces scale[a]	.3514	1.8138	1.0000	1.7728	1.3585	1.6536

* A positive change score denotes improvement

Analysis of variance

a. F=3.697 df 116 p=.028: Bonferonni test significantly more improvement in the FHW registered intervention group (p<.05) compared to the control group

The intervention group registered by the health advocate improved significantly more than the control group on the faces scale (mean difference = 1.01; CI difference 0.11 to 1.91; p<.05 indicated by the Bonferroni test) (Table 7.41). Both the intervention groups significantly improved over the three month follow up period on the Faces Scale (p<.05) (Table 7.42). The effect sizes relative to the control group were small (es = 0.53; 0.33) (Table 7.44) as classified in table 7.43.

Table 7.42: Statistically significant differences in mean delighted-terrible faces scale for each group between baseline assessment and follow up

	GROUP		
	Control Group n=42	Intervention group Self registered n=22	FHW registered n=53
Delighted-terrible faces scale	ns	*	***

All tests are t-tests (2 tailed) for paired samples: significant differences between assessment at time one and assessment at time two are indicated by * p< .05, ***p<.001

Table 7.43: Effect size classifications for the Faces Scale in the present study

	Effect sizes			
	Small 20%	Medium 40%	Large 80%	Maximum
Delighted-terrible faces scale	0.47	0.94	1.88	2.35

Table 7.44: Faces Scale effect sizes of magnitude of improvement in intervention groups relative to the control group between baseline assessment and follow up

	self registered intervention group vs control group	fhw registered intervention group vs control group
	Effect size	Effect size
Faces Scale	.33	.53*

*<.05 indicates significant difference between groups on change scores (ANOVA; Bonferonni test

Multivariate Analysis

Dependent variable: Faces scale change score

Potential confounding variables ie those which showed univariate differences (frequent use of street drugs, marital status, type of temporary accommodation [living in family hostel], long term illness, having emotional and /or practical support) were included in the model along with variables that also showed differences between groups at baseline: age and contact with other agencies. Again, each of the independent variables, including type of intervention and baseline Faces Scale score, were entered into a stepwise regression analysis for explaining the change in the Faces Scale in the follow up sample of homeless adults (n=117).

Only two variables remained in the final model: baseline Faces Scale score and intervention group registered by the health advocate. Using the Adjusted R^2, this model explained 39.4% of the variance ($F= 35.396$ $p<.0001$). At step one the baseline Faces Scale score explains 36.8% and at step two the baseline Faces Scale score and being in the intervention group registered by the health advocate together explain 39.4%.

Faces Scale: Conclusion

Baseline equivalence was found between the groups: a similar proportion of all three research groups felt dissatisfied, unhappy or terrible about their lives as a whole. Over the three month follow up period, within group changes indicated that it was possible to detect a positive change in this homeless population at the 5% level of significance on this global item.

The intervention group registered by the health advocate improved significantly more than the control group on the faces scale. Although this improvement was statistically significant, the effects was of a size conventionally rated as "small".

An intervention effect was detected using multivariate analysis. Allocation to the intervention group registered by the health advocate predicted improvements in how subjects felt about their life as a whole.

Thus the different types of analysis confirm that:

a) intervention effects on a global question about how respondents felt about their life as a whole were evident for temporarily homeless at three months follow up;

b) overall intervention effects tended to be small.

RELIABILITY AND SENSITIVITY TO CHANGE OF HEALTH RELATED QUALITY OF LIFE OUTCOME MEASURES IN THE PRESENT STUDY

The results from the current study show all three measures to be capable of detecting differences between groups and measuring significant change between baseline and 3 month follow up. These instruments have demonstrated face validity, construct validity, concurrent validity and internal consistency (see Appendix VI). This final section of results, reports further analysis on the internal consistency and sensitivity to change of these instruments.

Internal Consistency

Table 7.45: Internal consistency of the outcome measures (n=222)

	Alpha	Standardised Item Alpha
Life fulfilment scale		
Personal subscale score	0.6894	0.6991
Material subscale score	0.5611	0.5558
Overall score	0.7025	0.7095
Nottingham Health Profile		
Emotional	0.8250	0.8389
Sleep	0.7321	0.7419
Social Isolation	0.7592	0.7688
Energy	0.6374	0.6612
Pain	0.8481	0.8699
Physical Mobility	0.7202	0.7075

Sensitivity to change

To further assess each instruments' capacity to measure change, change scores are correlated with all other change scores for the follow up sample (n=117). The results are shown in table 7.46 and 7.47.

Association Within and Between the NHP, LFS and Faces Scale Change Scores

Association within the NHP

As with the actual scores (see appendix VI), most association was found between the emotional reactions change score with social isolation and sleep dimension change scores; 0.57 and 0.64.

Association within the LFS items

There was less association within the LFS item change scores (table 7.47). Greatest association was found between fulfilment housing and fulfilment with area of residence (0.58). And there was some correlation between fulfilment with family and fulfilment with self (0.43) and fulfilment with spare time (0.42)

Associations between the NHP and the LFS.

The table 7.46 reveals that the most association was found between emotional reactions and personal fulfilment (0.61) and overall fulfilment (0.61). Table 7.47 shows that most of this association is derived from three LFS items in particular: fulfilment with family life (0.54); fulfilment with self (0.48) and fulfilment with spare time (0.40).

Associations between the NHP and the Faces Scale.

Change on the Faces Scale was associated with change on emotional reactions (0.62), and sleep (0.51) (table 7.46).

Associations between the LFS and the Faces Scale.

Change on the Faces Scale was associated with change on personal fulfilment (0.61), material fulfilment (0.51) and overall fulfilment (0.65) (table 7.46). In particular the change on the Faces Scale was associated with change on fulfilment with family life (0.52) and self (0.45) (table 7.47).

Table 7.46: Correlations between change score of the six Nottingham Helath Profile dimensions, the Life Fulfilment Scale sub scores and overall score and the Faces Scale

	Emotional Reactions	Energy	Social Isolation	Sleep	Physical Mobility	Pain	Personal subscale	Material subscale	Overall life fulfilment	Delighted-terrible faces scale
NOTTINGHAM HEALTH PROFILE **Emotional Reactions**	1.000	.438**	.568**	.643**	.009	-.097	.606**	.398**	.609**	.615**
Energy	.438**	1.000	.305**	.376**	.269**	.214*	.332**	.244*	.348**	.224*
Social Isolation	.568**	.305**	1.000	.367**	-.053	-.067	.429**	.279**	.432**	.430**
Sleep	.643**	.376**	.367**	1.000	.119	.077	.449**	.329**	.452**	.511**
Physical Mobility	.009	.269**	-.053	.119	1.000	.327**	.093	.008	.071	-.029
Pain	-.097	.214*	-.067	.077	.327**	1.000	.051	-.066	.000	.101
LIFE FULFILMENT SCALE **Personal subscale**	.606**	.332**	.429**	.449**	.093	.051	1.000	.437**	.879**	.606**
Material subscale	.398**	.244*	.279**	.329**	.008	-.066	.437**	1.000	.799**	.510**
Overall life fulfilment	.609**	.348**	.432**	.452**	.071	.000	.879**	.799**	1.000	.650**
DELIGHTED-TERRIBLE FACES SCALE	.615**	.224*	.430**	.511**	-.029	.101	.606**	.510**	.650**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7.47: Correlations between change scores of the six Nottingham Healt Profile dimensions, the ten items of the Life Fulfilment Scale and the Faces Scale

	Emotional reactions	Energy	Social Isolation	Sleep	Physical Mobility	Pain	A good family life	Having close friends	Spare time activities	Being in good health	Being happy with yourself	A happy marriage	A secure job and stable job	Having enough money	Being happy where you live	Housing that meets your needs	Delighted -terrible faces scale
NOTTINGHAM HEALTH PROFILE **Emotional reactions**	1.000	.438**	.568**	.643**	.009	-.097	.542**	.328**	.401**	.290**	.476**	.203*	.065	.354**	.365**	.255**	.615**
Energy	.438**	1.000	.305**	.376**	.269**	.214*	.326**	.101	.145	.346**	.292**	.027	.034	.123	.275**	.166	.224*
Social Isolation	.568**	.305**	1.000	.367**	-.053	-.067	.409**	.376**	.199*	.071	.371**	.154	.073	.243*	.259**	.181	.430**
Sleep	.643**	.376**	.367**	1.000	.119	.077	.460**	.156	.305**	.250**	.432**	.066	-.105	.207*	.316**	.255**	.511**
Physical Mobility	.009	.269**	-.053	.119	1.000	.327**	.118	.006	.001	.011	.050	.131	.048	-.150	.075	.074	-.029
Pain	-.097	.214*	-.067	.077	.327**	1.000	-.066	-.050	-.127	.228*	.091	.124	.005	-.096	-.014	-.034	.101
LIFE FULFILMENT SCALE **A good family life**	.542**	.326**	.409**	.460**	.118	-.066	1.000	.289**	.424**	.235*	.430**	.252**	.056	.235*	.334**	.222*	.518**
Having close friends	.328**	.101	.376**	.156	.006	-.050	.289**	1.000	.376**	.067	.258**	.133	-.008	.091	.111	.119	.241*
Spare time activities	.401**	.145	.199*	.305**	.001	-.127	.424**	.376**	1.000	.144	.372**	.153	-.064	.274**	.231*	.213*	.373**
Being in good health	.290**	.346**	.071	.250**	.011	.228*	.235*	.067	.144	1.000	.347**	-.039	-.035	.233*	.278**	.224*	.407**
Being happy with yourself	.476**	.292**	.371**	.432**	.050	.091	.430**	.258**	.372**	.347**	1.000	.189*	-.087	.296**	.262**	.266**	.448**
A happy marriage	.203*	.027	.154	.066	.131	.124	.252**	.133	.153	-.039	.189*	1.000	.136	.230*	.147	.116	.244**
A secure job and stable job	.065	.034	.073	-.105	.048	.005	.056	-.008	-.064	-.035	-.087	.136	1.000	.029	.092	-.122	-.009
Having enough money	.354**	.123	.243*	.207*	-.150	-.096	.235*	.091	.274**	.233*	.296**	.230*	.029	1.000	.444**	.404**	.370**
Being happy where you live	.365**	.275**	.259**	.316**	.075	-.014	.334**	.111	.231*	.278**	.262**	.147	.092	.444**	1.000	.577**	.449**
Housing that meets your needs	.255**	.166	.181	.255**	.074	-.034	.222*	.119	.213*	.224*	.266**	.116	-.122	.404**	.577**	1.000	.405**
DELIGHTED-TERRIBLE FACES SCALE	.615**	.224*	.430**	.511**	-.029	.101	.518**	.241*	.373**	.407**	.448**	.244**	-.009	.370**	.449**	.405**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

8

A REVIEW OF THE STUDY AND DISCUSSION OF THE RESULTS

The chapter will provide a critical discussion and reflection of the research process. It will focus on how far this study has been able to evaluate the efficacy of the service provided by the Family Health Project. A full discussion of the results in terms of the appropriateness of the methodologies used in this project and their effectiveness at testing the primary hypotheses will be offered. The design, implementation and analysis of this study raise a number of methodological issues which should be borne in mind when interpreting the findings.

A synthesis of research findings with the relevant literature will highlight the contributions this study makes to service providers and researchers. The evidence of effectiveness of the health advocacy approach will be unpicked by discussing the two main hypotheses in detail. The results will be placed in the context of previous intervention studies.

HAS THE STUDY MEASURED THE EFFICACY OF THE HEALTH ADVOCACY SERVICE?

This study has been successful at implementing a controlled design in a primary care setting. In the light of the literature reviewed in the systematic review, the design compares favourably to some of the more germane intervention studies (Toro et al, 1997; Cauce et al, 1994; Zimmer, 1992). Given the difficulties in the "real world" of using a control group and randomising attenders, this study opted for the best compromise (Roberts and Sibbald, 1998); a pragmatic design was adopted, using quasi-randomisation (sequential allocation).

Research in the primary health care setting

Before considering this study in terms of the methodological quality criteria applied in the systematic review it is essential to highlight the difficulties of doing research in general practice and how these were accommodated by the design. Firstly there was the problem of not overburdening health workers with data collection. Health providers work hard to gain trust and establish credibility and often feel that extra data collection will interfere in the formation of a therapeutic relationship with the client (Hunter et al, 1997). Second, a number of health professionals at the health centre, including the health advocate initially, had some reservations about involvement with a controlled study, as noted elsewhere (Orwin et al, 1994; Toomey et al, 1989; Snowdon et al 1997). The difficulty of asking service providers to withhold services from individuals in need is a typical problem in the conduct of experimental and quasi-experimental evaluation research (Cook and Campbell, 1979).

These problems were apparent at the beginning of the present study but training sessions with staff members helped to resolve any misgivings that staff had about the research. The researcher and health advocate were based on the practice site, so queries and problems could be resolved quickly when necessary. Breaking down communication barriers and increasing the understanding of the importance of the design was critical to implementing an evaluation with the requisite research design.

As with other studies reviewed in chapter two, the evaluation had to adjust and function within service demands. For example, the team agreed, after the pilot phase, to include an 'unplanned referral' group for patients who registered during control phases, but were deliberately referred to the project team, over-riding the normal allocation procedure. The use of this group occurred when a member of the PHCT felt that essential help was needed from the health advocate, if for example patients had severe physical or mental health problems, or families with complex child protection issues. The unplanned referral group consisted of twelve (8%) adults and fifteen children (10%) who were referred to the health advocate despite registering in 'control' months. Other studies also adopted this method (eg Hague 1992) of allocating high risk clients to the treatment group, counter to the protocol.

A conservative approach ("intention to treat") was adopted to analysing this group; all patients were included in the original groups irrespective of whether they received their allocated treatment. This does potentially weaken the comparison of this study. The alternative of leaving the 'unplanned referral' group out of the analysis would render the control sample unrepresentative of high risk patients.

Recruitment over the 3 years of the study

There was a steady increase in the number of families accepted as homeless in Liverpool in the three years before the start of the study: 722 in the period 1990-91; 840 in the period 1991-92; 955 in the period 1992-3 (Liverpool City Council Housing and Consumer Services Directorate, 1996). Some months after the start of the project there was a reduction in homeless acceptances by Liverpool City Council due to the following changes in housing policy:

- bed and breakfast hotels were used less in favour of Liverpool City Council hostels;
- the choice of rehousing offered to homeless was reduced to either North or South of the city;
- "move-on" accommodation was used to provide temporary housing for people awaiting a permanent property.

Two attempts were made to try to counter the dip in registrations and enlarge the study sample:

- The first: lengthening intake periods from one to two or three months for both arms of the study in an attempt to gain more control subjects. These periods fluctuated from two or three months for practical reasons as well as to ensure that no month was represented by either intervention or control phases for each of the three years. This was important to avoid systematic biases such as seasonal variation which has been a relevant factor for homeless research (Vredevoe et al, 1989).

- Second: when the dip in registrations continued, an effort was made to try to include other PHCTs in Liverpool in the study of workload. Organisationally this was successful, but the extra effort was unwarranted due to the small number of identifiable homeless people registering with other practices. Thus after some months of data collection and only a few extra subjects this was abandoned.

Other operational alterations during the project

There were difficulties encountered over providing a consistent service throughout the three years of the project, although this was in the main within the PHCT rather than project team. The most prominent difficulties were some staff turnover among the general practitioners at the health centre in the first two years of the project, and building work in the final year which resulted in intermittent closure of the practice list. This did not alter the practice of temporarily registering 'new to the area' homeless people. A further result of the imminent building work was a "drop-in" surgery which was initiated for a period of six months. Finally, the health advocate took maternity leave in the second year of the project, although this only affected one three-month intervention phase (July - September 1994). During this period the researcher acted as a lay outreach worker/ health advocate, returning to her normal role during the control phase.

METHODOLOGICAL CRITIQUE OF THE PRESENT STUDY IN TERMS OF THE CRITERIA USED IN THE SYSTEMATIC REVIEW

Although it was possible to run this study as a prospective quasi-randomised controlled trial, there were certain limitations which threaten both internal and external validity. These limitations will be discussed in terms of the inclusion criteria for the systematic review (see Box 2.2 repeated here for ease of reference) so that the reader can assess the methodological quality of this trial against the criteria used in the systematic review of published trials (chapter 2).

(Repeated)

Box 2.2: SYSTEMATIC REVIEW SELECTION CRITERIA

Stage II:
Studies should fulfil all of the following nine criteria:
1. was the study described as a RCT?
2. was the study complete?
3. were the objectives of the study defined?
4. was there a clear description of the interventions?
5. was there a clear description of the inclusion and exclusion criteria?
6. was the sample size appropriate (n>=30) or justified by power calculations?
7. were validated or objective outcomes used?
8. was there an adequate follow up (>=50%[1])?
9. were the methods of statistical analysis described?

And studies should fulfil 2 out of the following 4 criteria
10. were appropriate methods of random assignment described?
11. were the assessors of outcomes (other than self rated) blinded?
12. were the control and treatment groups comparable at entry?
13. was there a description of those who withdrew from the trial before its conclusion? (Were respondents comparable to non-respondents?)

Stage two studies fulfilled each of the following nine criteria:

1. Was the study described as a randomised controlled trial?

This controlled clinical trial, which used quasi-random allocation of clients to groups,

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[1] A 50% attrition rate was used in Marshall et al's (1997) systematic review of case management for severe mental disorders.

would have been excluded from the systematic review on the basis that it **did not fulfil the essential criterion of being a fully *randomised* controlled trial.** Strict randomisation of patients was not feasible in the context of a busy health centre. The undoubted strength of randomising individuals was outweighed by the difficulties that would be caused in other respects. Randomisation at registration would have required major changes in reception procedures at the health centre, and would have led to confusion and dissatisfaction for staff and patients, as well as the project team. Also, the intervention and usual care groups would be more prone to contamination, with the result that any real effects of the intervention would have been obscured (Chalmers, 1989). Another option would have been to use another site as a control group: but this would have involved too many extraneous and potentially confounding variables. Furthermore, most of the Liverpool Housing Aid hostels were situated in the PPHC practice area, so the number of homeless patients registered at other practices was small.

2. Was the study complete

Yes.

3. Were the objectives of the study defined?

The study has clear objectives and hypotheses (outlined in the methods chapter).

4. Was there a clear description of the intervention?

This criterion was satisfied; a full description of the implementation of the intervention is provided in chapter 4. Chapter 3 highlighted the importance of measuring both the effects of an intervention and the components and mechanisms responsible for producing the effects. Measurable aspects of the intervention are reflected in the health service utilisation data relating to both the specialist health advocacy worker and other primary health care staff.

The intervention incorporates the three main characteristics of the methodologically sound studies highlighted in the systematic review. The first is **integration of social support** within mainstream provision; second, **multi disciplinary teams** and inter agency collaboration; and third, the use of a comprehensive and co-ordinated multi-disciplinary approach to supporting needy individuals, often using a **case manager to advocate** on behalf of the homeless and to provide links with existing services.

5. Was there a clear description of the inclusion and exclusion criteria?

The inclusion and exclusion criteria were clear (see chapter 4). The within-group homogeneity was maximised by excluding other groups who were not officially homeless but who received treatment from the health advocate: practice patients with housing problems and clients in an the alcohol dependency rehabilitation hostel who were not homeless. This further refining of inclusion criteria ensured the sample was reasonably homogenous, which reduces the error term in statistical testing and increases the likelihood of detecting significant intervention effects (Sidani and Braden, 1998).

Along with much of the current literature concerned with families this study has tended to focus on those who have been accepted as homeless by local authorities. Very little is known about those who have applied and not been accepted, those living in squats, those living on friend's floors or those subject to harassment or violence from inside or outside the home (often termed 'the hidden homeless'). However, it is reasonable to expect that the findings from good studies should be applicable to those 'hidden homeless' too.

6. Was the sample size appropriate (>=30) or justified by power calculations?

The sample size was sufficient to detect differences between groups. Sufficient numbers of adults were recruited for the workload analysis in the three study groups (n= 149; n= 96 and n=155). The number of adults retained for the follow up analysis of quality of life was smaller (n=42; n=22 and n=53). The sub-division of the intervention group was deemed more important than increasing the sample size by assuming one intervention group only. Large samples are preferred in RCTs but in this present study it was felt that feasible attempts at increasing the sample would have a detrimental effect on internal validity. Despite the number of participants not being as high as originally hoped, statistical power was achieved; the number of subjects proved sufficient to achieve clear statistically and clinically significant results.

7. Were validated or objective outcomes used?

This criterion was satisfied; objective outcomes (health service utilisation) and validated subjective outcomes were used in the study. Service utilisation was measured in this study by actual contacts with the primary health care and secondary health care services recorded in the patients notes. This could be considered a rather crude measure, as no information on the nature or length of consultations was collected. On the other hand similar data is collected in national morbidity studies (OPCS, 1994) and is more comprehensive than the usual more limited self report health care attendance data collected (George et al, 1991; Victor et al, 1989; Victor et al, 1992). In terms of coverage, data collected on use of primary care services was 100% for both adults and children. Such information provides an economical means of measuring the effects of the health advocate on the workload associated with the homeless. It also provides some systematic general information on the nature of the homeless population and can help in forecasting the demand for services and tailoring specific interventions to the characteristics of the population.

The measurement of workload may provide the desired 'hard' measures of outcome. In this particular study health related quality of life measurement may be seen as providing 'soft' data. This mix of hard and soft data may be beneficial. ‘Effectiveness’ can mean different things to different people and the collection of both types of data acknowledges these varying perspectives for the criteria used in measuring the impact of health interventions.

The quality of life outcomes were self completed questionnaires; further work to assess the validity demonstrated that all three outcome measures discriminated adequately between a permanently housed and a homeless sample (see Appendix VI). None of the measures suffered from ceiling or floor effects and all successfully measured change in a homeless population.

“Health-related quality of life” refers to the physical, emotional and social impact of diseases and their interventions or treatments on patients’ lives (Guyatt et al, 1993). The heterogeneity of the population’s characteristics, health and support needs required broad measures of health status with generic items which focussed on individuals' subjective perceptions of their health, rather than disease-specific measures. Sanders et al (1998) in their study of quality of life measures in randomised controlled trials reported that the NHP was the most frequently used generic measure of quality of life. Perceived health has been found to be more closely related to use of health services than classification by diagnosis (Goldstein et al 1984). Indeed, perceived satisfaction with health was related to health service utilisation measured in the present study.

Careful choice of instruments is essential in quality of life measurement (Bowling, 1991; Jenkinson, 1995; Streiner and Norman, 1995). The measures used in this study were not without their faults (Jenkinson, 1994; Jenkinson et al, 1991) but there is no gold standard health related quality of life measure. The measures chosen seem to have been appropriate and valid in the context of this study. Whilst scientific criteria are vitally important in the selection of appropriate measures, they cannot be applied to the exclusion of more practical considerations. It was also necessary to consider the practical problems of administering the measures both from the point of view of the project staff based at the health centre and from the point of view of the respondents. Due to the difficulties in maintaining contact with homeless individuals and the limited time available to build up a rapport to encourage the patient to fill in the questionnaire, it was essential that the instruments chosen were quick and easy to administer and simple to understand.

This controlled trial, when placed within the **wider context of health service research** in general, is part of a minority (less than 5%) of RCT studies which report on quality of life (Sanders et al, 1998). Chassany et al (1999) described their checklist of 10 main biases they have found in the quality of life literature (Box 8.1). It is hoped that the results section and discussion of this thesis has clarified that the present study has avoided bias as far as possible.

Box 8.1 Chassany et al's (1999) 10 main biases in the quality of life literature

- The trial is not comparative
- Lacks power or is too large
- QOL questionnaire is not validated and its responsiveness has not been tested
- No description of follow up patients during the study
- No description of withdrawals and handling of missing data
- Analysis is not on an intention to treat basis
- Presentation of results is flawed eg sd's and individual domain scores not reported
- Confidence intervals of differences between treatment groups or the size of the effect is not given
- The level of significance is not adjusted for the number of statistical comparisons
- Clinical relevance of results is not discussed

8. Was there an adequate follow up rate?

The 53% response rate satisfied this criterion. Collecting data to measure self-rated quality of life proved difficult and time consuming. As expected, there was considerable attrition of the sample. Respondents were often experiencing crisis at the time of the first questionnaire (Taylor, 1993) and completing questionnaires was unlikely to figure highly on their list of priorities. Added to this was the difficulty of finding individuals in their hostel rooms when called upon to deliver the (baseline and follow up) questionnaires and complete the new patient interview. The difficulty in tracking some individuals at the 3 month follow up was made more arduous by the relatively fast turnover in the rehousing system in Liverpool. However, the 47% overall attrition rate in this study compares favourably with many of the follow up studies which evaluate the impact of interventions for homeless people (eg 56% in Stretch and Krueger, 1992; 46% Shlay and Holupka, 1992). Toro et al, 1997 note that "locating homeless individuals in a longitudinal design is inherently difficult. A few early longitudinal studies (Fisher, 1989 cited in Toro et al, 1997; Solarz, 1986) failed to obtain an acceptable number of repeat interviews (less than 25%), even over short time periods (2-6 months)." Conway (1988), in her description of homeless families in Manchester, reported that the City Council rehoused 116 households from hotels and only 42 could be traced, which reflects the high degree of mobility amongst homeless families.

In the present study a greater proportion of the individuals in receipt of the health advocacy intervention returned questionnaires at follow up. The better response rate compared to the control sample may be related to improved engagement; a possible indicator of the value of the intervention. Herinckx et al (1997) demonstrated in their study that dropout from services can vary significantly as a function of type of treatment. Patients who were followed up in the present study had spent longer in the area and used the service in the health centre more frequently. Cohen et al (1993) found a relationship in their study of homeless mentally ill adults between participants agreeing to be interviewed at follow up and greater service contact at the 4 month follow up. Another study (Braucht et al, 1995) found that attrition was less when the control group also had relatively intensive services. Toro et al (1997) found that those with full follow up data were more likely to have a diagnosis of severe mental illness - and they concluded that their follow up sample may be somewhat biased toward the more psychologically impaired.

A further reason for attrition was patients' preoccupation with confidentiality following domestic violence. Some individuals made their own housing arrangements and did not inform either the hostel or housing agency of their forwarding address. Often however, even when the whereabouts of an individual was known and follow up questionnaires were posted, patients chose not to complete and return them.

It is not just that homeless families are difficult to track down; persuading them to complete questionnaires and return questionnaires can be difficult. Although other studies have used incentives, this has not always improved response rates (Solarz, 1986) and this study did not offer patients payment for filling in questionnaires. As indicated above, more intensive interventions may be easier to follow up. The results from this study, along with studies highlighted in the systematic review (Cohen et al, 1993; Lipton et al, 1988; Concover et al, 1997; Toro et al, 1997) should enable future researchers to focus on encouraging this population to report outcomes and complete questionnaires.

9. Were the methods of statistical analysis described?

The methods of statistical analysis have been described in the chapter 4. The approaches used in the statistical analysis consisted of a number of relevant summary measures and a comparison of these across the research groups by bivariate methods and multivariate analysis. Further subdivision and subgroup analysis was ill advised given that the study was not designed for this purpose and the number of subjects was not huge. The analyses adopted are readily performed on SPSS (version 7; 1995); their interpretation is reasonably straightforward. The inclusion of the unplanned referral group of patients in the control group, on an "intention to treat" basis resulted in a conservative estimate of the effects of the intervention (see 'research in the primary health care setting' section earlier).

Stage two studies fulfilled 2 out of the following 4 criteria:

10. Were appropriate methods of random assignment to treatment and control group described?

Strict randomisation was not used in this study. The quasi-randomisation makes it even more important to address the issue of integrity in seeking to evaluate this innovative "real world" study. Internal validity is the extent to which one can attribute an effect to a known cause; in this case, the question is whether differences in the observed quality of life scores can be attributed to the health advocacy intervention (McKee et al, 1999). Internal validity is strongest when all the alternative causes of variation are controlled for, and weakest when there are many that are uncontrolled. When a research design is weak it is difficult to interpret the results with any confidence. Randomisation should ensure that comparison groups of sufficient size differ only in their exposure to the intervention concerned.

Strict randomisation in this study would, in theory, have increased the internal validity. However, it would not have been workable within the health centre and it would in fact have compromised external validity, in the sense of restricting the extent to which the interventions are generalisable to all potential recipients (opt cit). In this study the inclusion of the health advocate's outreach work provided a reasonable test of the intervention and strengthened the generalisability of the results. As well as being unfeasible for such a long intake period (three years)[2], true randomisation would have made it impossible to implement outreach registration for individuals in hostels and to maintain 'usual services' to individuals in the control group; crossover of intervention from health advocacy group to control group would have been a problem. This has been reported by others, for example, Mercier et al (1992) noted that

> "In outreach programmes, a procedure such as randomisation interferes with the programme objectives themselves" (Mercier et al, 1992 p422).

They also observed that criteria such as referral and formal registration to programmes allow greater control of experimental conditions because they apply to a highly selected clientele. *Where the clientele is more broadly defined, the research procedure must be adapted to the setting.* In this study randomisation, even if feasible in terms of outreach, would have been difficult to maintain, given that the health centre had at least 10,000 other patients. Other studies which randomised perhaps found this easier as they operated a separate or discrete service for homeless people, rather than one which existed alongside those for the general population.

11. Were the assessors of outcomes blinded?

Self rated outcome measures were used, so this criterion was not relevant. The outcome measures used in this study were questionnaires (for health related quality of life) completed by the applicants themselves (self report questionnaires); and actual service utilisation data were collected from medical records. It is unlikely that interview bias or other bias such as social desirability would have affected the results.

The **health advocate introduced the self-report questionnaires** to the intervention group and the researcher introduced those for the control group. It was felt that although the substitution of a researcher at this point may be considered methodologically sound, it would have increased the burden of participation for the respondent. By the time patients were registered with the health centre and followed up by the health advocate

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[2] In all the studies which managed to randomise subjects to groups the mean length of the intake period was only 14 months compared to 32 months for the before and after studies.

or researcher, they had often undergone several interviews with the housing agency, the benefit office, the homeless social work team, the hostel staff and possibly the GP. The health advocate felt that the presence of a researcher would alienate patients and make developing a relationship, in a relatively short intervention, more difficult. Wright et al (1992) and Argeriou (1992) pointed out that the case manager (in our case the health advocate) might obtain better cooperation from her case-managed patients than a researcher. In any case, self report questionnaires were used to minimise bias of social desirability, which might have been a problem had interview data been relied upon (Warwick and Lininger, 1975).

One inclusion criterion often used in Cochrane reviews is whether or not the study makes the **patient blind to the 'treatment'**. This study, like all those included in the review, and most other health service research studies not involving the use of drugs, failed to make the patient blind to the 'treatment'. The sampling method meant that some individuals, however, were not made aware of group allocation. It is possible that some of the non-equivalences between research groups may have resulted from this lack of blinding. Because of a longer introductory interview with the health advocate before questionnaires were filled in, some of the patients in the intervention group may have put more emphasis on their emotional distress than the patients in the control group ($p<.05$; table 7.15) who only had a 5 minute interview with the research worker (completing the temporary resident questionnaire - Appendix II), prior to filling in the questionnaires.

The sampling method meant that staff were aware of the allocation of each patient, so **'blinding' of observers** was not achieved. It is possible (although unproven) that project and health centre staff may have altered their treatment of the intervention or control groups in subtle ways, although the service received from the reception staff should not have differed for the two groups. It was to be expected that GP behaviour would be affected by group allocation since referrals to other agencies, (for example to the housing authority) required them to act for control-group clients.

12. Were control and treatment groups comparable at entry?

One of the main threats to the validity of this study was the **differences found between the groups at baseline**: the main differences were in temporary accommodation and reason for homelessness. However, the group comparison of those in the follow up sample showed fewer between group demographic differences at baseline.

At the outset of the study there was no reason to suggest that the sequential assignment to either health advocacy intervention or usual care in this study would cause selection bias and result in nonequivalent research groups at baseline. In the event, the recruitment did affect the comparability of the groups. In the eventual intervention sample there were those who self-registered at the health centre and those who were registered proactively by the health advocate. In retrospect, the inclusion of proactively registered patients was bound to result in the recruitment of people with a different profile from that of health centre attenders. Indeed at baseline this group were slightly younger ($p<.001$; table 5.1) and consulted less frequently ($p<.001$; table 6.9). A high proportion of the proactively registered intervention group were recruited during the health advocate's routine visits to family hostels. This group were more likely to be homeless due to family or friends being unwilling to house them or due to crime or harassment at their previous tenancy, as opposed to other health and social reasons. Problems of recruiting equivalent clients for the comparison groups are not unique to this study (Whelan, 1992).

There were no important differences at baseline between the two "attender" groups: the self-registered patients (adults and children) in the intervention group, and the attenders in the control group. "Like with like" comparisons should therefore, ideally, be based on these patients, although the full pro-active intervention also deserves evaluation and is likely to be of use in future service delivery.

In fact, those individuals who were registered proactively had more similar than different characteristics to the self registered patients. The same housing criteria applied, they were mainly women with children, they had similar life fulfilment on nine separate domains, sleep, energy, pain and physical mobility (on the full baseline sample n=222).

The three groups had a comparable proportion of referrals to secondary care (which may represent the more severely ill patients) suggesting that the range of illness presenting to the PHCT was similar for all three groups. Although reasons for help seeking behaviour were not exhaustively explored in this study, there were no major differences in morbidity between the three groups. The differences between attenders and proactively registered patients was that only the attenders had come to the health centre to register, which usually meant they felt they needed medical attention at the time.

13. Were respondents comparable to non-respondents at baseline?

This criterion was satisfied. Service utilisation data were available on all subjects and despite the high attrition rate, comparative analysis of the follow up sample and non-respondents showed that there were few differences. These did not pose a significant problem; the follow up sample can be regarded as adequately representative of the full study sample both demographically and in terms of measured quality of life at intake to the study.

In conclusion:

Attrition and small between-group differences at baseline were the main threats to the validity of this study. Nevertheless, an acceptable overall follow up (at three months) response rate of 53% of possible subjects was achieved. Although groupings which were not entirely similar at baseline were used, the different registration strategies for the experimental and control groups improved external validity in this study. This did however, complicate the interpretation of the outcomes for the different groups; in that the outreach sample have, when registered, not yet developed a requirement for health services. Despite these weaknesses, the methodology of the current study presents a vast improvement on many of the studies which have evaluated interventions for homeless families.

On the question of whether the present study design would qualify for inclusion in the higher-quality set of studies for the systematic review, the earlier discussion with regard to the methodological criteria would suggest this study would be 'borderline' for stage two selection. The study satisfied seven of the initial nine criteria and then two of the four final selection criteria. There are a number of other studies in this category (ie Toro et al 1997; Cauce et al, 1994 and Zimmer 1992): all attempted an experimental design but either failed to assign subjects to groups randomly; were incomplete; or failed to achieve adequate response rates, leaving some uncertainty about the interpretation and generalisability of the results.

Generalisability

The quasi-experimental design of the Family Health Project study, offered greater potential for obtaining generalisable results than an RCT, which can often be an artificial exercise (Seal, 1993); one of the most common criticisms of controlled studies is that they are performed in unreal conditions. The external validity of this study was strengthened by involving 'action-research' in an existing health centre. Working from an inner-city health centre and using sequential allocation allowed the project to provide both mainstream (generic) and specialist (health advocacy) services for temporarily homeless patients. The additional 'in-house' provision within mainstream services would be relatively easy to replicate in other inner-city practices which provide health care to homeless people in temporary accommodation across the UK. Indeed similar projects were implemented in the same period but were not formally evaluated (Williams, 1995).

There are two aspects of generalisability to be considered:

1) Can the results be generalised to the population of people from whom the follow up sample was drawn?

2) Can the results be generalised to the wider population of homeless people?

The first aspect has been found to be satisfactory and is discussed within point (13) above. The second aspect is discussed below.

The project area contained two out of the three family hostels run by Liverpool City Council, the two main women's refuges in the city and the only hostel for young people;

participants in the study were therefore certainly representative of the official homeless in the area and corresponded with other samples drawn from the same population (Coufopoulos and Stitt, 1996).

The results of this study demonstrate the outcomes associated with a health advocate based within a PHCT in the inner city area of Liverpool. Given the precision required for defining the homeless, generalisation may only be possible with regard to similar population samples. It is therefore important to bear in mind when considering the results of this evaluation that the homeless who apply to local authorities are only part of the entire homeless population. The project sample is representative of statutorily accepted homeless in other metropolitan areas in the United Kingdom because of similar admission/ acceptance criteria (see Box1.1 chapter 1). The respondents in this study were similar to those reported in other British studies (Vostanis et al, 1997, Victor, 1992; 1996; 1997).

There are however a number of issues which may limit generalisation to other areas. First, even when demographic characteristics are similar, caution is needed in applying the findings directly to other areas, as rehousing procedures may vary from area to area and over time (see chapter one, figure 1.1). For example areas which tend to rehouse homeless directly may benefit from an adapted implementation of the health advocacy approach.

It could also be argued that the use of only one site and one health advocate in this study may have allowed personal characteristics to weigh heavily in the intervention, potentially leading to "experimenter bias" (Rosenthal, 1966 cited in Christensen, 1997) and possible difficulty of reproducing the precise effects of the intervention in other settings. On the other hand the health worker was selected on the basis of well-defined professional characteristics (ie RGM trained and well described skills). Likewise, the service was provided within a mainstream setting in Britain, so could be transferred more easily to other British settings than (say) a model of case management from the US. That said, the case management activities of one of the largest studies of homeless families (Rog et al, 1997) were remarkably similar to the health advocacy approach, involving regular visits to families, arranging services and developing service plans (see also A(ii) below). Furthermore, the lengthy data collection period which took place over 36 months will have increased the study's temporal validity[3]; the relatively high turnover of GP staff reflected 'real world' conditions in urban primary care.

Another prerequisite for successful generalisation (Lipsey 1993) is knowledge of for whom and under what conditions the intervention works, for improving or refining the intervention (Chen and Rossi, 1980), and for its clinical applicability. The inclusion of potentially confounding variables in the multivariate analysis has simplified this and will be discussed in the next section.

To conclude, the outcomes reported in this study may be derived from different factors: a carefully structured research design; treatment intervention based on a health advocacy approach; the local demographic and health status of the population; local clinical and treatment standards; the peculiarities , management style and ethos of the local primary health care team (the practice was a resourceful and innovative one), housing agencies, social services and other local services; project status as opposed to a permanent service; staff enthusiasm for the project; and other local idiosyncrasies.

Because the observed outcomes are likely to be a result of all of the above, as with any single-site study, it would be naïve to assume that this sample is representative of the country as a whole. It cannot be assumed, from this one study, that a health advocacy service would work equally well elsewhere. Although the project has been thoroughly evaluated in its present setting, a health advocacy service established elsewhere, might have markedly differing outcomes depending, for example, on whether it was located within well resourced or poorly resourced community health and social services.

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[3] Temporal validity refers to the extent to which the results of a study can be generalised across time.

DISCUSSION OF RESULTS

The original justification for the Family Health Project was derived from the excess GP workload associated with homeless adults and children also noted elsewhere (Victor et al, 1992; Lissauer et al, 1993; North et al, 1997). This is borne out in this study when the contact rates for homeless people are compared with stable populations who hold permanent GP registration (OPCS, 1994) (table 6.8). A successful bid was made for extra resources to provide a health advocacy model and a team approach to help with the particular, complex needs of homeless individuals and families. Dealing with the social and health needs of homeless people required counselling, advocacy, knowledge of health services and local resources and liaison skills to complement the usual mainstream general medical care.

The health advocacy approach aimed to improve the care of temporarily homeless people through empowerment and the addition of health promotion to their care package, and to reduce the stress levels of the primary health care team. This study tested two hypotheses:

I. A health advocate working with a Primary Health Care team in an inner city health centre can improve the health related quality of life of homeless patients.

The results showed evidence of effectiveness of the health advocacy intervention for self-registered and proactively-registered homeless people in improving the life fulfilment outcomes from baseline to follow up. More specifically, when compared to those people who received only usual primary care services, individuals who were *registered pro-actively* by the health advocate gained significantly more fulfilment in four areas: "family life"; "being happy with yourself"; "area of residence"; and "money". The multivariate analysis detected intervention effects *(for both intervention groups)* on the two fulfilment subscales: personal and material fulfilment. The effects resulted from changes in satisfaction with life rather than the importance attached to these different aspects of life. Although these changes were statistically significant, all effect sizes were small[1] relative to the changes in the control group, apart from the moderate effect found on the "being happy with self" item.

Evidence of effectiveness of the health advocacy intervention for *proactively-registered homeless people* was demonstrated by the "emotional distress" and "sleep" changes from baseline to follow up. After controlling for baseline predictors, patients pro-actively registered and in receipt of the health advocacy treatment were significantly more likely than patients receiving 'usual care' from their GP to report improvement on "emotional distress" and "sleep problems". The effect sizes, relative to the control group, were small for improvements in "sleep" and moderate for the improvements in "emotional" problems.

The results from the analysis of the overall Faces Scale also confirmed that the group *pro-actively registered* by the health advocate felt better "about their life as a whole" at three months follow up compared to the control group.

The second hypothesis to be tested was the following:

II. **A health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers in relation to homeless patients.**

The results showed that patients (both adults and children) who registered themselves with the health centre and who were subsequently followed up by the health advocate, utilised no more primary health care resources than those who received usual care. However, the results show clearly that individuals who received the *proactive outreach registration* and health advocacy intervention utilise less primary health care team resources than patients who received usual primary care. Clients pro-actively registered by the health advocate accepted and sought her help in dealing with a wide range of health related and social problems; yet no significant extra relative costs were associated for this extra care (see Appendix VII). Given the better outcomes for these patients (see above) this is an important conclusion to service development for the homeless

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[1] Effect sizes were interpreted using the Kazis (1989) method which is more stringent than the more general interpretation offered by Cohen (1977) (see chapter 4).

population. The outreach method, when combined with usual registration, widened access to primary health care services for homeless people in the area, and ensured that health education and health promotion services were offered to homeless people.

Interpretation of Results

Box 4.0 *(repeated)* **Hypotheses tested**

Hypothesis I: A health advocate working with a Primary Health Care Team in an inner city health centre can improve the health related quality of life of homeless patients.

Hypothesis II: A health advocate working with a Primary Health Care Team in an inner city health centre can reduce the workload of GPs and other health workers in relation to homeless patients.

The following discussion of the results has been structured around the four possible outcomes (Christensen, 1997 p471) for each of the hypotheses tested in this study (Box 4.0):

A. Accept the study hypothesis: *decision correct.* This part of the discussion will focus on explaining the measured intervention effects detected in this study;

B. Reject the study hypothesis: *decision wrong* (Type II error[2]). This discussion will consider the possibility that real differences may have been overlooked, or obscured, which may explain the lack of treatment effects on some variables.

C. Accept the study hypothesis: *decision wrong* (Type I error[3]). This section will explore the likelihood that the effects found could be explained other than by hypothesis I and II.

D. Reject the study hypothesis: *decision correct.* This final section will consider the possibility that more treatment effects would have been detected had the intervention been effective for the self registered group; and how the sensitivity of the study instrumentation could have been enhanced.

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[2] Type II error: in this case failing to reject the null hypothesis when it is false ie concluding that the treatment is ineffective when it is effective.

[3] Type I error: in this case false rejection of the null hypothesis ie concluding that the treatment is effective when it is ineffective.

A (I). Correctly accept hypothesis (I) that a health advocate working with a Primary Health Care Team in an inner city health centre does improve the quality of life of homeless patients.

The **relevance of health related quality of life** as an outcome measure for a homeless population has been discussed in detail in chapter three. The baseline life fulfilment and health status results showed the sample as a whole to be experiencing low quality of life and health status - findings which are consistent with other research into homeless people in temporary accommodation (Solarz, 1986; Pickin and Ramsel, 1990; George et al, 1991; Calsyn and Morse, 1990; Cauce et al, 1994). This lends credence to appropriateness and face validity of the instruments used in the context of this study. Health status comparisons indicated that 93% of this population reported some emotional problems compared to 31% of an inner city deprived (but not homeless) population (Curtis, 1985) (see table 5.6).

The **three independent outcome measures were consistent** in demonstrating that the health related quality of life of people supported by a health advocate during their stay in temporary housing improved more than that of people given 'usual care' at the health centre. Although it is not possible to state unambiguously that the health advocacy input was the sole cause of the improvement in quality of life for individuals in this study, all three instruments used were sensitive enough to demonstrate statistically significant differences over a three month interval. In particular, the results showed that pro-active health advocacy was associated with positive outcomes for homeless individuals. Although significant improvements were made the distress levels are still considerably higher at follow up when compared to a general working class population (Hunt and McKenna, 1991) (see table 7.18).

Sensitivity of outcome measures.

The change score and effect sizes not only depend on there being change in health related quality of life assessed, but also it depends on the responsiveness of the instrument. The analysis of effect sizes however gives a good estimate of the size of the impact. The sensitivity of the NHP and the LFS were not altogether consistent (but nor were they expected to be), demonstrating the importance of including a battery of outcome measures. Greater effects and more significant results were detected on the LFS; it appears that the LFS is more sensitive to the change in the items assessed.

The largest effects were found on the item pertaining to "being happy with oneself" (LFS) and "emotional distress" (NHP) dimension, demonstrating **congruence with the aims of the health advocacy intervention.** A large majority of the health advocate's work was client-led, helping with the things that made a differences to people's lives. Often the help focused on basic needs (Maslow, 1962) such as helping to improve the patient's social environment and resources. These activities would often include advocacy on behalf of the patients with staff from other agencies for access to benefits, housing problems, tracking social security and housing applications, obtaining clothes, pots and pans and nursery places. One might argue that the sense of failure and stress caused by the inability to fulfil basic needs can lead to low self-esteem especially if long periods of homelessness or stress are endured; domestic violence, for example, can lead to exhaustion and fatigue (DiBlasio and Belcher, 1993). Homeless people, in particular homeless women, have high unmet mental health needs (Watson, 1986; Marriot et al, 1997; Vostanis et al; 1997; Winkleby and Boyce, 1994; Buckner et al, 1993; Hatton, 1997) and often seek help with coping with stress and low self esteem (May and Evans, 1994; Lindsey, 1996; Conway, 1988). It seems particularly apt that an intervention which focuses on empowerment, support, advocacy and the psycho-social aspects of health should produce greatest effects on outcomes related to self esteem and mental health. Indeed, Campbell (1981) (see chapter 3) found that 'the self' was the most highly related life domain with respect to general satisfaction. Two of items on the scales, "fulfilment with oneself' (LFS) and "emotional distress" (NHP), were significantly correlated and were therefore likely to be measuring the same construct (see table 7.46 and table A6.7 - appendix VI).

The **priorities of homeless people were also consistent with those areas which showed a treatment effect.** On ranking the "importance" ratings, the greatest importance (see table 5.7 and 7.22) was attached to "health", then "housing", "being happy with yourself", "area of residence" and "family". These are similar to those found in the general population (Bowling, 1995[4]) and treatment effects were found on all but "health" and "housing". The least importance was attached to "having a job" possibly as a result of the cycle of poverty, with expectations being lowered to match circumstances (2% of clients were employed at baseline).

The treatment effects detected are consistent with some of the previous research, although only a few of the intervention studies reviewed in chapter two and three measured quality of life. The quality of life outcomes of various intervention studies have been discussed in detail in chapter three. One study of Assertive Community Treatment (ACT) for homeless mentally ill people (Lehman et al, 1997) detected intervention effects on general well-being, neighbourhoods and health at 6 months. A further study (Rife et al, 1991), also of assertive case management, which shared many of the elements of the health advocacy approach (see chapter 4), detected large effect sizes[5] on global well-being, living situation, finances and safety and health domains. The lack of a control group was however, a major flaw in this study and will have contributed to the larger effect sizes. There were a few other studies which measured related outcomes (see chapter 4, construct validity of LFS). For example, Morse et al (1997) provided some evidence to suggest that assertive community outreach is more effective than "brokered case management" at reducing anxiety, depression and patient satisfaction and more effective than ACT with community workers as regards improvement in self esteem. Shlay and Holupka (1992) provided a family centred case management intervention. The cohort evaluation conducted over 2 sites and 2 years found that adults' feelings about themselves (measured by self esteem and anxiety) improved more when the needs of children were addressed at the same time.

The results of the health related quality of life analysis in this study have indicated

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[4] Bowling (1995) found that a random sample of 2000 adults in Great Britain, in response to a generic question about the five most important things in their lives, were most likely to mention as the first most important thing in their lives: relationships with family or relatives, followed by their own health, the health of another (close) person and finances /standard of living/ housing (see chapter 4: content validity of LFS).

[5] Effect sizes for before and after studies: mean change in outcome divided by standard deviation at baseline.
Effect sizes for two group comparisons: mean of the intervention group minus the mean of the control group divided by the standard deviation of the control group (see also chapter 2 and 4).

which client characteristics predict outcomes. The findings that proactively registered people fair better is consistent with Rosenheck et al, (1995) who found that contact by outreach was significantly related to housing outcome at follow up. A greater improvement in personal fulfilment in homeless women was also detected in the Family Health Project study, which is consistent with a number of other studies (of mostly mentally ill homeless women) (Morse et al, 1994; Hurlburt et al, 1996; Cauce et al, 1994). Cauce et al (personal communication) detected more improvement in quality of life outcomes in young women who received intensive case management (as opposed to normal). However, Stovall and Flaherty (1994) in their study of a small sample of homeless shelter residents in the US, found that homeless women may perceive programmes as less supportive than men do which may affect the individual's use of the agency.

A (ii). **Correctly accept hypothesis (II)** that a health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers.

It is clear from the results that individuals who received the *proactive outreach registration* and health advocacy intervention utilise less primary health care team resources, but more of the health advocate's time, than patients who received usual primary care. This section will focus on the proactively registered group. The analysis of relative costs to the NHS (Appendix VII) showed that the method of proactively registering temporary homeless people, (with subsequent health advocate contacts substituting for some visits to the GP), **was no more costly than usual care.** No intervention effects on primary health care workload were found for the homeless adults and children who first registered themselves with the health centre and who were subsequently followed up by the health advocate.

The best predictors of higher use of resources at the health centre in homeless adults were: a poor self rating of health at intake to the study, not being pro-actively registered by the health advocate, taking regular medication, using street drugs frequently, and a poor self rating of mood. It is easy to see why these variables are associated with high service utilisation and their presence confirms the importance of a psycho-social model of health in this study. In particular, the significant explanatory value of the self rating of health was not surprising given that perceived health has been found to be more closely related to use of health services than medical condition (Goldstein et al, 1984).

The original aims of the project were focussed on reducing GP workload for the homeless. The results indicated that a proportion of contacts with the health advocate may have **substituted for intervention from or visits to the GP.** It is likely that at least some of the contacts with the health advocate may have substituted for other primary care resources too. This was evident in the multivariate analysis (table 6.20); variation in primary health care workload was partly explained (17%) by variables such as "pro-active registration", "patient initiated contacts" and "long term illness". Both the findings that a lower workload was associated with individuals who were pro-actively registered by the health advocate and with those who initiated contacts with the health advocate (ie they either telephoned or sought her out at her regular outreach visits to the hostels) are consistent with hypothesis II. It has been shown elsewhere that programmes offering limited advocacy or health checks to all potential clients can proceed to more comprehensive interventions for some (Susser et al, 1990). Conversely, the advocacy intervention may be economical; Overhage et al (1995) showed that collecting details of medical histories *decreased* the number of tests ordered by 15% and they are currently evaluating the benefits of an information system for a homeless client group.

Compatible with this argument of substitution, the health advocate's workload was partly explained by "pro-active registration" (table 6.30). More of the health advocate's time was spent working with or on behalf of the proactively registered patients. If someone's first point of contact with PPHC is with the health advocate, then they continue to utilise her services during the rest of their time in the area. Those who registered themselves with the health centre had between 3 and 4 contacts with the health advocate and those who were pro-actively registered had between 5 and 6 contacts over the three month period. (The length of contacts were not formally measured but were estimated to last, on average, between 20 and 30 minutes.) It is difficult to compare the contact rates with other studies as the few studies which did report relevant data differed in time periods and recording of data. But it is likely that these contact rates are similar to those reported as 'intensive' in Rog et al (1997) (see also table 2.6). Rog reported that families tended to have 15 hours of direct client services and 15 contacts during the first year of service from the intensive case management team. The health advocate had more contacts with some subgroups of the population. In particular, families, individuals in contact with a social worker and health visitor, individuals with a high alcohol consumption and those living in a hotel or B&B were more intensively visited. The interpretation is that these groups are likely to need a more intensive level of support in further work with the homeless.

From the point of view of the general practitioners, the lower consultation rate in the proactively registered group may be less relevant than the **perceived decrease in the length of consultations** and the number of different problems which needed to be addressed in each consultation. Although these aspects were not formally measured, the general opinion amongst health centre staff was that patient consultations that followed intervention from the health advocate benefited from improved background information and greater clarity about the needs of the individual; they certainly perceived a lower level of stress related to these consultations. The link between burnout and effective services has already been discussed in chapter 2 and applies to the wider health service (Williams et al, 1998).

Although the needs assessment process could be seen as demand-creation, in that it tended to uncover significant problems for many families and individuals, these were largely addressed within the remit of the health advocate. Other members of the team reported, from early on in the 3-year project, that it was **less stressful dealing with temporary residents** knowing that their complex needs would be addressed by the health advocate in her advocacy role. Doctors and practice nurses were provided with relevant patient information from completed questionnaires (appendix II and III) and could make better use of consultation time. **Patients had the opportunity to focus on health-related problems in a relaxed and unhurried manner prior to seeing the doctor,** and were likely to be less tense and more open as a result. The health assessment form included a checklist of health issues relating to health promotion and disease prevention, so patients were more likely to be offered immunisations, cervical smears and other checks which they might otherwise have missed. Non-medical health needs were also identified before the consultation and could be dealt with by the health advocate herself or by liaison and referral to other agencies.

In the wider mental health literature, there is evidence to suggest that **by targeting people who are at risk of experiencing mental health problems, the deterioration of mental health can be prevented** (National Health Service Centre for Reviews and Dissemination, 1997). This text also shows that mental health promotion is more effective when interventions can build on social networks, intervene at crucial points in people's lives, and use a combination of methods to strengthen individuals to enhance their psychological well-being. A targeted outreach approach is also compatible with standard one of the National Service Framework: mental health promotion (Department of Health, 1999) which aims to ensure that health and social services promote mental health for all, working with individuals and communities. It also aims to combat discrimination against individuals and groups with mental health problems whilst preventing their social exclusion (opt cit, p14). The rationale is that mental health problems can result from the range of adverse factors associated with social exclusion and can also be a cause of social exclusion.

Alternative interpretations of the results will now be discussed in sections B-D.

B(I). Wrongly reject hypothesis (I) that a health advocate working with a Primary Health Care team in an inner city health centre can improve the quality of life of homeless patients. (Type II error)

Real differences may have been overlooked: explaining the lack of treatment effects in the self registered group.

Few intervention effects were detected on people who had access to the health advocate after registering themselves at the health centre, and not all health related quality of life variables showed intervention effects for the proactively registered. There may be a number of (methodological) reasons why this occurred, such as: variability within groups, attrition and insensitive measures. These may render a decision to reject the study hypothesis erroneous.

Variability within groups (and statistical power)

An alternative explanation for the small effects is the *substantial variability within each group*. The profile of the client group under study in this thesis shows the varied characteristics of homeless people living in temporary accommodation. Such a heterogeneous group will respond to improvements in health care in different ways and variability within the samples was expected. The use of inclusion criteria was an attempt to ensure that groups were reasonably homogenous, which reduces the error term in statistical testing and hence increases the likelihood of detecting significant intervention effects (Sidani and Braden, 1998). However, the variation in the implementation of the intervention resulted in varying "doses" of the treatment across participants. This, coupled with the variability in characteristics (including health related quality of life at baseline) within each sample, and small sample sizes, may have weakened the study's ability to detect differences, decreased the power of the study and complicated the interpretation of outcomes.

Attrition (and statistical power)

The high attrition rate (discussed in the previous discussion of methodology) may have also reduced the power of detecting statistical differences in the outcomes of the self registered group. This will also accentuate the problem of variability within groups (see above).

Insensitive measures

It is possible that the sensitivity of the study to the impact of the intervention could have been enhanced by changing the instruments used. The health related quality of life instruments may not have been sensitive to all aspects of the health advocate's intervention, and did not measure the effects on the whole family. It has been argued that the sense of failure and stress caused by the inability to secure basic needs can lead to low self-esteem especially if long periods of homelessness or stress are endured. It might have been useful to have focused on more specific outcomes, for example, measures of self esteem or social support, as these might be even more congruent with the health advocacy intervention. Other studies have also indicated that homeless people need services to address their low self esteem problems which should be reflected in the services provided (Cauce et al, 1994; Morse et al, 1997).

Stringent measures

The generally small effect sizes found in this study illustrate the importance of conducting an in-depth analysis of clinical significance as well as statistical significance. The analysis of effect sizes is more stringent in the present study compared to the effect sizes reported in the systematic review (see statistical analysis in chapter 4), which partly explains the larger effect sizes found in the effectiveness literature (e.g. Hurlburt et al (1996), Susser et al (1997) and Morse et al (1997)) included in the systematic review; these used Cohen's (1977) benchmarks rather than effect size benchmarks peculiar to each study. Furthermore most of the effects were on category data, which tend to produce larger effects. None of these studies detected large effects on quality of life and they applied mostly to achieving stable housing or reducing homelessness.

Unplanned referral group

The conservative method of "intention to treat" analysis was adopted for this study, where all patients were included in their original group for analysis. Although this only affects 5 adults in the follow up study, these are a 'high support' group of patients who, had they not received the help of the health advocate, may have fared less well on the health related quality of life measures. Thus, their inclusion in the control group might have weakened the chance of finding intervention effects.

B (ii). Wrongly reject hypothesis (II) that a health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers. (Type II error)

Real differences may have been overlooked: explaining the lack of treatment effects. No intervention effects in workload at the health centre were detected on people who had access to the health advocate after registering themselves at the health centre. There may be a number of (methodological) reasons why this occurred, such as: insensitive measures, length of follow up and contamination. These may render the decision to reject the study hypothesis erroneous.

Insensitive measures

It is possible that other unmeasured aspects of workload such as the length or nature of contact or the number of problems discussed with the GP might have been influenced by the health advocacy approach. There is a multitude of other factors, many of them not measurable, which are likely to affect a patient's decision to consult a GP or other primary care worker.

It would have been useful to know if the list of prioritised needs (health check) reduced consultation time. Were patients more relaxed and were they less likely to expect the GP to sort everything out if they had already seen the health advocate? It may be possible to measure more of these aspects in the future, especially with better information systems and Read coding of diagnosis, procedures, symptoms etc in primary health care.

Short follow up period.

Essentially the health advocacy intervention was about helping people get the best out of the mainstream PHCT and associated agencies, rather than creating a single focus for care, which may result in dependency. 'Empowerment' of this sort was demonstrated as the patients in the health worker group began to use primary (and secondary) health care services more appropriately. (It would also be interesting to look at the longer term effects on health service and social service uptake and provision.)

Contamination

Another explanation for few intervention effects being detected between the usual care group and the self registered intervention group might be contamination. This might arise due to the usual care group being housed in the same sites as the intervention group, introducing possible threats to the internal validity of this study (Cook and Campbell, 1979). This problem was also reported in a number of the evaluation studies included in the second stage of the systematic review (Lehman et al, 1997; Susser et al 1997, Conrad et al 1998) and in a borderline study (Cauce et al, 1994).

One must consider to what degree the primary care service for the control group represents 'services as usual'. Although the control group were not in receipt of services specifically from the health advocate, they were treated at the same site. It has been suggested elsewhere that other staff might act to compensate or imitate certain aspects of the experimental intervention (the 'John Henry Effect' cited in Wright, 1992). This might have been detected if the processes involved in the care of each group had been measured in more detail. It is also possible that the presence of the health advocate and the improved organisation associated with the treatment of the homeless patients in general, along with an increase in confidence of the hostel and hotel staff when dealing with health needs of residents, may impact upon the workload associated with the control group over time.

The results of this present study were therefore examined for the presence of a 'halo' effect (or any other possible reason for changes in outcomes over time), to see whether consultations with patients in the control group also diminished over time, becoming more in line with the intervention group. No significant effect was visible in the year by year analysis of outcomes (3 years).

C (I). **Wrongly accept hypothesis (I)** that a health advocate working with a Primary Health Care team in an inner city health centre can improve the quality of life of homeless patients. (Type I error)

(ii). **Wrongly accept hypothesis (II)** that a health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers. (Type I error)

Alternative explanations for the positive results.

This error is more common in uncontrolled studies, but there might be plausible alternative explanations for the positive results in this study. Baseline differences, attrition and regression towards the mean will be explored to exclude a different interpretation.

Baseline differences resulting from non-equivalent recruitment strategy

One flaw of the study is the non-equivalent recruitment strategy for the groups of patients. By definition, the outreach sample have, when registered, not yet developed a felt need for health services. This group differs from the others with respect to certain baseline characteristics such as age and contact with other agencies. This pro-actively registered group tended to be younger than the self registered intervention group; and a greater proportion of the self registered group had contact with a social worker at baseline. It seems unlikely that these factors could account for the finding that people who are recruited soon after they arrive in temporary accommodation and receive early help from a health advocate improve more in health related quality of life and use fewer primary care resources than those who register at the health centre.

Attrition

The high attrition rate may have rendered the follow up sample unrepresentative of non-responders on variables other than those measured.

Regression towards mean

Any improvement found might be due to scores regressing towards the mean. In other words, respondents who score highly initially are statistically more likely to show an improvement. In any repeated measures design there is a tendency for follow up scores to *regress towards the mean.* This should however apply to all research groups evenly and should not contribute to the generally small intervention effects found in this study.

D (I). Correctly reject hypothesis (I) that a health advocate working with a Primary Health Care team in an inner city health centre can improve the quality of life of homeless patients.

The project was set up with the expectation of substantial gains in health related quality of life for the self registered group. There might be a number of possible reasons why the expected improvements in quality of life were not as large as expected. This discussion will explore the lack of treatment effects. It is possible that the positive intervention effect of outreach is not an indication that the self registered group might also benefit from the health advocate's work, nor is the "moderate" effect real in itself either. The assertion would be that the intervention is ineffective given the massive problems that these patients face; or that quality of life will only be achievable with doctors (not the health advocate's) help, or changes in housing, employment status and personal relationships for example; or that such gains are illusory anyway, (for example, if the instruments are invalid) and that the negative results of "insensitive" items and dimensions are in fact "true negative results", i.e. the emotional /sleep results are "false positives".

Over optimistic expectation given the length and intensity of intervention and the multiple problems associated with this client group.

The effect sizes, comparative to the control group, were usually small. Given the circumstance of this group, this was not entirely unexpected.

> "Homeless people may be at a particularly difficult point in their lives. If followed over a significant period, the homeless can be expected to show some improvements. However, such improvements may be limited." (Toro et al, 1997 p482)

Although the temporarily housed patients in this study were not severely mentally ill, they were certainly living under stressful conditions and the case can be made that it would be unrealistic to expect major improvements in their health related quality of life, over a relatively short follow up, even with the support of a health advocate. Given the high unemployment, rehousing in a deprived area, unsupportive relationships, it may be naïve to think that health advocacy can have a large impact on these outcomes: a small or moderate effect would be a more realistic expectation.

Comparatively low intensity intervention

The fewer intervention effects compared with other studies may also reflect a number of other distinct explanations such as the different populations studied (usually mentally ill homeless) and comparatively more intensive interventions available to other populations studied. For example, Morse et al (1997) whose effective treatment comprised of similar elements of service to that studied in the present study i.e. advocacy, prioritising clients needs, outreach and engagement within a multi-disciplinary team used a high staff : client ratio.

Sensitivity of instruments

It has already been shown that achieving improvements in quality of life is not always possible. It was suggested in chapter two that large intervention effects in clinical and quality of life outcomes on homeless mentally ill, those who abuse substances or individuals with personality disorders, are difficult to achieve with a case management intervention; given that many of the interventions focus on supporting, stabilising and maintaining individuals in extreme situations rather than producing significant change (Mercier and Racine, 1995). Indeed, Cauce et al (1994) and Marshall et al (1996) were unable to find any treatment effects and Lehman et al (1997) was only able to find time effects at the final follow up (see chapter three). By contrast, it was hypothesised that homeless people in temporary accommodation are by definition in transition, and may be able to achieve positive outcomes in the medium and long-term. The access to primary health care (as shown by all groups) may prevent people from deteriorating but improvement may be difficult without parallel improvements in the person's social, housing and personal circumstances.

Regression towards the mean

If the above is the case, then any improvement found might be due to scores regressing towards the mean (see above).

D(ii). Correctly reject hypothesis (II) that a health advocate working with a Primary Health Care team in an inner city health centre can reduce the workload of GPs and other health workers.

The PHCT acted as a safety net

A further reason for the limited effect sizes in this study, particularly on the health, pain or physical mobility outcomes, may be that the so-called usual service offered a reasonable safety net. All patients had access to GPs and practice nurses, and to secondary health care; so despite all groups improving over time, intervention effects were small. As with other studies, eg Braucht et al, (1995 p108), a health advocacy approach might be shown to be more effective in a context where services are available but **not** easily accessible without a health advocate's assistance. However it should also be recognised that a health advocate is unlikely to have much effect if adequate primary health care, housing and social services are not available.

Related to this point, the 'safety net' might have been stronger for clients whose first contact with the health centre was with a general practitioner. These people subsequently tended to use the health advocate less frequently. The health advocacy intervention for self registered patients may therefore be weakened, as a trusting relationship with one of the GPs may have been established prior to meeting the health advocate.

Extra identified needs (because of needs assessment) may have offset savings in workload for the other PHCT members.

The small effect on workload may not necessarily indicate a lack of effect altogether. It was envisaged that the health advocate's presence might create demand, which might in turn have offset the anticipated reduction of workload. The fact that the health advocate often identified health needs and encouraged people to seek help from the practice may have therefore reduced the size of the effect for hypothesis II. This is speculative, as the extra demand, in terms of the number of GP or practice nurse appointments, letters or referrals generated via the health advocate was not measured. It may also be difficult for future studies to measure contact data in such detail. Furthermore, this could also be considered a positive outcome in terms of increasing access to health care and health promotion.

Other effects such as dependency

Much of the debate in the project about the role of the health advocate has been about striking a balance between reducing the workload of the rest of the PHCT and generating dependency on the health advocate. This is related to the above point in that referrals to the GP may have guarded against creating dependency with certain clients. The health advocate case-managed this client group, and there was a risk of clients becoming dependent on her rather than making use of mainstream services, either when homeless or after moving into permanent accommodation (Hinton, 1994).

Baseline differences

The intervention effect on workload was not as strong for the children as for adults in the study. Children pro-actively registered by the health advocate had fewer contacts than control children with primary health care, but the possibility that these differences may be partly due to the demographic differences between the groups such as age, gender, type of accommodation and reason for homelessness cannot be ruled out completely. Indeed, the multivariate analysis demonstrated that 34% of the variance in primary health care workload for children could be explained by five variables: age; along with intervention group (pro-active registration); length of time in area; having a long term illness; and number of children in family.

The differences between groups may have been due to factors not measured

Although demographic variables and baseline scores for all three health related quality of life instruments were used to control for any initial differences among groups, it is still possible that attrition could have resulted in an unknown source of bias that may have compromised the conclusions of these analysis. For example, it is not known how much the outcome indicators in this study are dependent on the input of other agencies, such as the outreach provided by the hostels and the housing department. Morse et al (1997) found that those clients receiving the experimental assertive community treatment (ACT) received more service contacts than the broker condition from other agencies on housing, financial assistance, health and supportive services. The underlying assumption is that these unmeasured variables are equivalent in all groups, but this could not be quantified in the present study. This is a weakness of naturalistic outcome research where all extraneous variables are not measured, making it difficult to explain all the processes that are responsible for the favourable changes.

Conclusion

Despite the weaknesses outlined earlier, the methodology of the current study presents a vast improvement on many of the studies which have evaluated interventions for homeless families. The study of the Family Health Project has shown that the health advocacy approach was associated with significant improvements in the health related quality of life of homeless adults, demonstrating congruence with the aims of the intervention and consistency with previous research. Domains which showed a treatment effect were also consistent with the priorities of homeless people. Hypothesis I is accepted as one is still able to infer from three highly deprived, highly morbid and reasonably comparable homeless samples that the health advocacy approach has positive effects on health related quality of life, and that early intervention is particularly beneficial. Hypothesis II is rejected for the self registered patients but the measurable benefit to patients was not achieved at the cost of increased workload at the health centre, despite the emphasis on pro-active health needs assessment which could be seen as demand-creating. Indeed, the results indicated that a proportion of contacts with the health advocate may have substituted for intervention from or visits to the GP.

9

CONTRIBUTIONS TO, AND IMPLICATIONS FOR, PRACTICE, RESEARCH AND POLICY

Synopsis

Whilst it is of course prudent to consider the limitations of the study of the Family Health Project, it is also vital to identify its implications for practice, further research and policy. In theory, the evaluation of health care should help to create a rational decision-making process which provides an objective assessment of the degree to which different practices are successful (Seal, 1993). This chapter will focus on the three levels of this process: service or practice, research and finally, how both the empirical study and systematic review of the literature can be applied in wider health policy in the UK. To a large degree these levels are complementary and are likely to be more effective if policies are developed simultaneously.

Despite the methodological problems discussed in chapter 8, the controlled study and the systematic review highlight the emerging evidence base in this area. The disappointing conclusion from the extensive searches of the relevant literature is that there is scarcely any definitive evidence about effective practice in ameliorating the health and well-being of homeless people, whatever their circumstances. The gap in current knowledge has been addressed in this thesis, which should be useful to those making decisions about appropriate health and social care for homeless people. There is some evidence on which practice can be based for homeless people, but there is still a long way to go before health and social services managers have enough evidence to inform rational decision making on what and how services should be provided. It is of course, all too easy for individual researchers to end their studies with 'guidance' on how decision makers should use their results. In reality, taking the issue of effectiveness into account is difficult when planning services, as much of the information on what works is not easily accessible to decision makers. Thus the gap between research and practice in much of the health service means that many relevant research results are not used. This might be due to lack of commitment to information-seeking from decision makers or to the failure of researchers to disseminate their findings. Even when there is commitment and at least some published research, reviewing all the available information and then putting it together to come to an overall conclusion still requires months or years of painstaking work. There are very few health authorities which have the time, resources or skills to be able to do this.

IMPLICATIONS FOR SERVICES

It is well known that there is a tendency for those worst off in society to receive least health care. The 'inverse care law' (Hart, 1971) describes the dismal reality of deprivation: the more you need, the less you get. Benzeval and colleagues proposed a framework for tackling inequalities in health which encompassed four levels for intervention: improve the physical environment; address social and economic factors; reduce barriers to adopting a healthier personal lifestyle; and improve access to appropriate and effective health and social services (Benzeval et al, 1995). In relation to the fourth level, the lack of clarity as to what kind of health care is optimal for the different groups of homeless people, has been highlighted throughout this thesis. The paucity of good evaluative studies, identified by many British researchers (for example, Power et al, 1999; Victor, 1996; London Borough Grants, 1998; Barry et al, 1990), is unhelpful.

> "In the absence of rigorously conducted evaluative studies it is impossible to conclude which model of care most effectively meets the very obvious health care needs of homeless people" (Victor, 1996 p266).

It is therefore, all the more important to use the results of the good studies that *are* available in the hope of achieving evidence based practice. This is the aim behind the consortium of researchers (NHS Centre for Reviews and Dissemination) commissioned by the DoH: to provide rigorous but accessible reviews for decision makers in the NHS.

> "Commissioning R&D and making resource decisions about implementation should not take place independently of the corpus of existing knowledge" (St Leger and Walsworth-Bell, 1999 p186).

The present study indicates that pro-active health advocacy with homeless individuals in temporary accommodation is associated with small to moderate improvements in patient quality of life, with less primary health care utilisation (reduced GP costs and no overall increased costs), compared to reactive care. These findings are particularly important given that this is the *first* study to use a controlled design in the evaluation of services for homeless families in Britain, or to the authors knowledge, the US.

Box 9.1 Recommendations for service provision

- Widen to access health services by routine registration of homeless people
- Provide early intervention
- Extend services to provide outreach
- Enable case management services to be provided
- Ensure services are integrated to mainstream services

A number of clear recommendations can be drawn from the results of this study (Box 9.1). The aspects of successful health care that are worth reiterating from this study are: the provision of wider access to health care by routine registration of homeless people; using outreach; early intervention; advocacy or case management; providing clients with continuity of care; and providing integration into mainstream services, rather than separate dedicated services (see also pages 171-174). These aspects closely reflect the conclusions from the systematic review. The three aspects of care that were important contributions to effectiveness in the methodologically sound studies in the systematic review were: integration of social support within mainstream provision; multi-disciplinary teams and inter-agency collaboration; and third, the use of a comprehensive and co-ordinated multi-disciplinary approach to support needy individuals, often using a case manager or advocate (see also page 118).

A case can be made from the results of this study for the anticipatory care of homeless families; the *outreach service* provided by the health advocate to families and individuals arriving in hostels was the most beneficial pattern of care. The results suggest that future primary health care services should focus on providing outreach registration and advocacy to individuals and families as soon as possible after they move into temporary accommodation *(early intervention)*. Access to health care should be maximised: new temporary residents should be routinely registered with a GP. The homeless need access to multiple agencies earlier on in their homeless state. Length of time spent homeless has been shown to be associated with poor self reported health status (Castle White et al, 1997). Thus, as well as targeting health care interventions at those who have been homeless for longer periods, it is also logical to provide early intervention. Of course, there will be some patient-advocate relationships which will be very transient owing to the instability and mobility of these people's lives. In this study inappropriate investment in conventional doctor-patient relationships was avoided - whereas this transience, or 'fragility of encounters' (El Kabir, 1996) was acceptable for the health advocate.

Just providing access to health care is unlikely to be adequate. The provision of *outreach* increases *access to health care*, but also emphasises *supporting homeless* individuals and *integrating them into mainstream services*. Follow up contacts can and should be arranged with more needy clients such as families, individuals already in contact with a social worker or health visitor, individuals with a high alcohol consumption and those living in hotels or B&Bs. These groups are likely to need a more intensive level of support. This is congruent with targeting people who are at risk of experiencing mental health problems to prevent the deterioration of mental health (see page 329).

Integrated services, rather than separate dedicated services

Future health advocacy services might be even more effective if there were stronger links with housing organisations and social services, bringing the intervention closer to the recipients and improving continuity of care and coordination of services once people are rehoused. Parallels can be made with many of the US models of care which are shelter based services, which move out into the community with the client (for example, Rog et al, 1995; Shlay and Holupka, 1992; Weinreb et al, 1995). The present study, as with the majority of services for homeless women and families, involves short-term work which is discontinued once they are rehoused. This is often due to service inclusion criteria (eg services only available whilst homeless) and sometimes because rehousing is often too far from agencies to permit continued use of services.

Greater integration between health, housing and social services in this area is consistent with the general political move to integrated services (DoH, 1998) and current health policy for homeless people (NHS Executive London Regional Office, 1999). Recently, there has been increasing emphasis on the need for inter-professional and joint working to bridge the gap between the failure to integrate health and welfare (social services and housing) for homeless people (Crisis, 1999). A four level 'integration-collaboration matrix' developed by Huxley (1998) for social services departments, secondary health care and community care is also relevant here: agency (joint commissioning level), professions (team level), case (individual case level) and task (individual task level). The health advocate in the current study has achieved the task, case and professional levels through liaison and multi disciplinary working. In future with the advent of primary care trusts there will be greater potential for this integration of management and funding on a local basis (Limb, 1998) as the trusts will provide a suitable fora for new partnerships between health, housing and social care at a locality level. Nevertheless, there are many issues to consider before this becomes possible, such as the practical obstacles to effective inter-agency working such as conflicting priorities, different planning and bidding cycles and problems about shared budgets (Goss, 1996) (see chapter one: implications for service, p54).

IMPLICATIONS FOR RESEARCH

In addition to the implications already outlined in chapter 2 (box 2.4), this section will highlight a number of implications that can be drawn from the current study and from the systematic review of health and social care interventions for homeless people (see box 9.2).

Box 9.2 Recommendations for future research

General

- Focus on effectiveness of services (rather than needs assessment) and policy development
- Learn from current literature (avoid repetitious studies)
- Secure direction from central agencies
- Encourage local development (commitment to act on results)
- Encourage multi-agency involvement at the earliest opportunity (commitment to act on results)

Methodology / design issues

- Consider the feasibility of experimental methods (pilot studies needed)
- Consider supplementing with triangulation and a strong measurement of processes of interventions
- Collect adequate process data from multiple agencies
- Used previously validated methods
- Examine the relative effectiveness of different professionals or skill mix: nurse, health visitors, non-professionals

Evidence based research

Although time consuming, *evaluations of health services are essential* to providing definitive information on the effectiveness of services. *Lessons should be learned from previous work* in order to avoid repeating the same mistakes and to make the best use of resources. Practice needs to be guided by well designed research so that standardised effective practices can be developed. At this stage, particularly in the UK, 'model' treatment programmes for homeless people have been implemented based mainly on needs assessment exercises, descriptive case studies and uncontrolled evaluations. Of course, geographical areas differ in problem severity and magnitude so needs assessments are necessary to determine and adjust resource requirements. The origins of the treatments offered often lie in the beliefs of the health care providers, not on the evidence of effectiveness (ie provision of what providers want to provide).

Health and social care workers for the homeless, who are often starting projects from scratch, need to learn from previous well designed research which must be disseminated, reviewed and condensed into policy recommendations. In reality, at least in the UK, it is often difficult for individual workers to be guided by previous research, not least because of the paucity of suitable research but because of the transience of many services and workers in the area. Furthermore, services for homeless people are often funded for the short term and in areas of high deprivation, therefore, on the whole there tends to be a high turnover of staff, at risk of burnout, who are not always prepared to continue with short term contracts (see chapter 2). Added to this, there seem to be very few British researchers who have specialised in service evaluation for homeless people.

The Family Health Project, was part of a national program to improve access to primary health care services for homeless people. These were jointly reviewed in a brief final report prepared for the DoH (Williams, 1995). Activity (process) data was requested in the form of 6 monthly reports to the DoH. At best, most of the 34 projects were only capable of collecting activity data such as number of consultations, presenting problems, treatment and referrals. Any type of formal evaluation, let alone experimental evaluation, was notable by its absence. Service providers encountered many difficulties collecting activity data; there were no defined evaluation criteria, consistent or standardised instruments used and data collection was described as 'ad hoc' (Williams, 1995). As stated earlier (page 140) it would be enormously helpful if future researchers could compile a standardised minimum data set so comparable information can be collected. For this set of projects, given that the general medical services funding precludes funding specific research, it is not surprising that no direct results were published.

Thus, the issue of **effective** services for homeless people, which focuses on outcomes of care, still needs to be tackled more widely. The same has been found of the US services for homeless families, with few studies tackling this issue (Rog et al, 1995). Service effectiveness should be evaluated continually in the light of the changing health needs of homeless people within a locality (Lee and Goodburn, 1993). The systematic review (chapter 2) concludes that there is a profound lack of evidence as to which kinds of services for homeless families will result in better housing outcomes and improved health and quality of life.

The prospective controlled intervention study (described in chapter 4) has provided data about the effectiveness of an advocate in a primary health care setting for the temporarily homeless. It remains to be seen whether the conclusions can be generalised to other areas. It is hoped that the dissemination of this study will stimulate the *development of more focussed research on interventions for homeless people using all the evidence marshalled here.* This would then move away from the futility of repetitive descriptive work and promote better use of resources. The systematic review in this thesis underscores the importance of evaluating the *effectiveness* of services for homeless people.

The many US studies of effective health or social care for homeless people are not specific to the particular client group or exact treatment used in this study. Yet, drawing on the strongest evidence available, the *relevance of case management for homeless people* is an important and probably generalisable conclusion. This is an important contribution of this thesis. If this vital point is not highlighted researchers in the UK are unlikely to learn from, and build upon the good and bad studies by researchers elsewhere, especially the US. This point is reflected in the developing aims of the new Campbell Collaboration[1]; to overcome 'the parochial views of social science, whether defined geographically or by discipline' (Boruch, 1999 p11) and to avoid redundant research studies.

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[1] (a developing review body for social care, social science equivalent of Cochrane Collaboration, http://www.ucl.ac.uk/spp/ publications/campbell.htm)

The huge number of studies is no guarantee of quality, and there are numerous pitfalls for researchers in this field. Attempts to follow up homeless people will often be unsuccessful; and project workers in deprived areas do not generally have the time, facilities and support to undertake properly designed evaluations. Before the methodological issues of future research are tackled, funding for the evaluation of services needs to be given a higher priority. The wider context of this study shows that *funders of new or existing homeless services cannot assume that projects will be evaluated* or indeed based on previous research evidence (for example the DoH general medical services funding of 34 primary health care projects for homeless people - discussed above and then referred to in the next section). Unless teams are motivated and equipped locally to deal with the issue of effectiveness, *centralised 'control'* may be helpful; there is some evidence that methodological difficulties can be more easily overcome if projects and evaluations are centrally funded and service directives can be implemented more easily (Orwin et al, 1994). Hunter and colleagues (1991) in their survey of 93 administrators of health care programmes for the homeless, recommended that evaluation be built into the homeless care delivery system and that 10% of the funding is allocated for this. They also suggest that use be made of an *external centre for evaluation*, which would lessen the burden on providers and provide cross agency data.

> "Whatever the mechanism, a systematic evaluation plan for health care programs for homeless people is recommended."(Hunter et al, 1991 p542)

Nevertheless, it is important to recognise that much of the service literature, including this study, suggests that *projects are more likely to work if developed from local initiatives* (Mercier et al, 1992; Williams and Allan, 1989). Increased commitment is more likely if providers are involved in their own evaluation; there is ownership and the development process is aided. It is therefore imperative that there is a commitment to further development at a local *and* national level.

Related to this *centralised versus stakeholder argument*, more organisations should be involved from the outset of evaluative research so that consideration of the potential for measurement of inter-agency effects is possible. Homeless people tend to receive care from multiple agencies, all potentially influencing patient outcomes and possibly accounting for differentials in control and experimental groups. For example, the input from secondary care, social services, health visitors and housing agencies should be documented as these may influence patient outcomes. This also ties in with the recommendation of greater integration of services. Many of the studies based in the US were multi-agency studies, yet few measured service use or processes across agencies (see chapter 3). Future studies should measure how the service are provided. In particular, the degree to which integration between agencies has been achieved, the intensity of services, skill mix, management styles and multi disciplinary team work.

Recommendations for further evaluations of the effectiveness of interventions

Assuming that at least some of the above recommendations can be met, new researchers should consider the feasibility of adopting experimental methods as well as aiming to evaluate multi-centred studies. Both the systematic review and the controlled study have demonstrated that *interventions to improve the health of homeless people can be evaluated using experimental methods*. Certainly, there are a choice of possible routes to evaluating the effectiveness of interventions for homeless people. Choices have to be made and these are dependent on a number of different aspects such as the circumstances of the evaluation, the investigator's underlying ideology and the resources available. This thesis is firmly rooted in the 'positivist paradigm' of evidence based medicine and has given pride of place to controlled studies in assessing effectiveness. Better to settle for the Archie Cochrane's 'reasonable probability' than the 'margin of the impossible' (1972). However, the Campbell Collaboration dedicated to assessing the effects of social and educational interventions will, if developed, incorporate other "evidence" (Davies et al, 1999). Questions are currently being posed on how best to synthesise non-RCT evidence 'without compromising the principle of well-designed RCTs as the gold standard' (Oakley, 1999).

One of the main reservations about the experimental paradigm is that most evaluations of social interventions 'must' use non-experimental methods. But it is demonstrated by the present study as well as many of those reviewed in chapter two that experimental methods are achievable in relation to homeless people. Although some researchers may have ideological difficulties with the approach used in this study and the decisions taken for selecting studies in the systematic review, this needs to be set against a backdrop of a dearth of evaluated interventions for homeless people and some social scientists are now taking a more positive view:

> "there seems to be no a priori reason why RCTs could not be used to examine a wider range of outcomes including psycho social variables" (Coulter, 1991 p123).

So, where feasible, further well designed and replicated controlled experiments involving new treatments and interventions are necessary. Without rigorous evaluation and monitoring, investment in such activities may be having little impact and be better used in other ways (Arblaster et al, 1996).

It has also been argued that the validity of trials is more important than generalisability, since it is never appropriate to generalise an invalid finding (Mant et al, 1996). They noted how the problems of conducting randomised controlled trials in general practice might be overstated (Pringle and Churchill, 1995). This may as a result discourage practitioners from participating in research that could provide important evidence that can be used to inform decision making (Mant et al, 1996). This argument could be applied to the care of the homeless illustrated by the lack of experimental evaluation research in Britain and indeed evaluations in general.

Future studies may benefit from the *addition of triangulation, or the measurement of processes in greater detail*, especially in light of the potential doubt expressed in the findings discussed in the previous chapter.

> "The addition of qualitative techniques would enrich the 'inevitably' restricted information provided by quantitative tools" (St Leger and Walsworth-Bell, 1999 p128).

It might be valuable to adopt 'multi method' research which acknowledges the weaknesses inherent in each method (Ong, 1993). This was not feasible within the resources constraints of this study.

In relation to further research regarding the health care for the homeless, *a co-ordinated policy would be helpful*, so that effort need not be duplicated and common standards can be applied. A *well designed multi-centre study for homeless families* in Britain is still required, with consideration of: setting, variability of services, target population, timing of interventions, planning and education of staff, skill mix and context of workforce for the health service. The data collected also needs careful consideration with control over the availability and quality of data, how comprehensive data collection can be, level of involvement from other agencies and choice of outcomes. Many of these considerations can be guided by the systematic review. Morbidity data and process data is at present is difficult to collect but this might improve with the advance of computerised recording in primary care (READ code system) (Pearson et al, 1996) and therefore would be easier to include in the list of methodological considerations.

The current study was not set up to determine if the delivery of the intervention requires special *interpersonal skills or expertise* on the part of the health advocate. Future studies might address the requirements for knowledge, motivation, education, training, experience, support and social skills of the staff delivering the services. Rog et al (1997) collected extensive process data on their multi sited study in the US: 91% (n=98) case managers were female, most were social workers and the mean caseload size was 1:22 and 44% had supervision once a week or more. 46% of family contacts were routine visits arranging or following up on services, developing service plans, counselling, problem solving, responding to crisis, advocating for the family, providing transport. This is similar to data related to the health advocate in the current study: female, supervision once a week, interacting with families, telephone and paperwork, travel (visits and errands).

External validity would be improved by using more workers in a multi-centre study. The use of different professionals might also address the question of *skill mix* in implementation. The original proposal for the current project did not specify that the health advocate should have RMN qualification or a nursing background. It stated that experience in health needs assessments was essential but that candidates for the health advocate's post might be health visitors, occupational therapists or social workers.

Similarly, it would be useful if future studies were designed to assess if particular interventions are as efficacious when implemented by *non-professional staff.* Indeed the expanded service funded by Liverpool Health Authority from 1997 onwards, provided a similar health advocacy care package to a wider client group from neighbouring health centres, using two lay support workers, managed by a primary care development nurse. A number of studies located in the systematic review included a further experimental group using 'para' professionals in relation to mentally ill homeless people (Lehman et al, 1997; Susser et al, 1997; Redelmeier, 1997; Morse et al, 1997) (the results of these are reported in chapter 2). Rog et al (1997) suggested that case management assistants could be used to free up the case manager's time for arranging systems and developing service plans (p81).

The systematic review highlighted the need to address staff needs in the provision of services for homeless people. The Family Health Project involved weekly supervision for the health advocate, provided by a GP with a special interest in the homeless. Future studies might explore stress levels, related variables (for example, grade and profession of worker, level of supervision) and outcomes (for example, turnover of staff due to burnout) (Williams et al, 1998).

Finally, researchers need to disseminate findings and avoid publication bias by adopting high standards in both the implementation and the reporting of experimental methods (Begg et al, 1996; Altman, 1996). 'Consensus' decisions are often based on opinion and current practice which is often flawed and out of date. The DoH's report Taking Research Seriously (DoH, 1990) stated 'overall, there is a need for a clear commitment to research, with resources provided for its dissemination and responsibility taken for its use'(p2). New initiatives such as clinical governance[2] (Baker et al, 1999), the Campbell Collaboration (see above) and established initiatives such as the Cochrane Collaboration will help to address how to disseminate the research and how it should influence policy. In particular, the development of the Campbell Collaboration is likely to be a potential source of sound advice in this area (Davies et al, 1999).

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[2] The focus is on establishing leadership, accountability and working arrangements, the conducting of a baseline assessment, the formation of a development plan and finally, the reporting arrangements underpinning these steps (DoH, 1999).

IMPLICATIONS FOR POLICY:
INFLUENCING THE DECISION-MAKING PROCESS

Box 9.3 Recommendations for policy

- Address health care of homeless as part of the strategy for tackling social exclusion
- Move from emphasis on immediate service provision to developing and evaluating **effective** services
- Local and central commitment to research, evaluation and development and consequent dissemination of important results
- Move away from repetitious "needs assessments": channel funding and expertise into health service research which is close to practitioners
- Link into the Campbell and Cochrane Collaborations
- Encourage the fusion of research and development

New policy agenda: social exclusion

If the recommendations from this thesis, which includes a synthesis of high quality studies in this area, are to be successfully implemented, they need to be embedded within a policy framework (Box 9.3). Homelessness is just one form of social exclusion and usually co-exists with other forms, such as poverty, unemployment, breakdown of relationships or families and single parenthood. Specialised primary health care services are not an alternative to a home, a job, a decent life or an effective long-term relationship. Health advocacy programmes such as the one described in this thesis are designed to ameliorate homelessness; they may go some way to meeting specific health and social needs and reducing some of the negative quality of life impacts that homeless people suffer. They are not directed at altering macro forces such as the economy but at the micro conditions and circumstances of individuals and families. Although the most effective way of reducing health inequalities will of course be in improving economic and social conditions and the physical environment (Arblaster et al, 1996; Acheson, 1998), this study has indicated, like others in chapter 2, that health services either alone or in collaboration with other agencies can contribute to improvements in health status and quality of life of homeless people. However, they should be part of a broader policy or strategy. For example, the provision of day care for providing an opportunity for mothers to enter the workforce and an opportunity for social interaction (Roberts and Pless, 1998). Indeed, the Government has accepted the need to take a wider look at the impact of the social, economic and environmental determinants of health (White Paper: Saving Lives, Our Healthier Nation; DoH, 1999). A greater commitment on reducing health inequalities has been made through focus on 'upstream' (wider range of consequences) and 'downstream' (narrower range of benefits) issues.

Now that we have enough needs assessments and surveys of the homeless and a few studies of the effectiveness of certain interventions, the next stage in the research cycle is policy development. The question of *how* the results of the current study (and outcome research in general, as described by Coulter, 1992) should be used to inform policy remains an important area for debate. As most health services for homeless people are not evidence-based and too many studies focus on minutiae, there is little useful information to instruct policy or future health service research on the efficacy of interventions for homeless people. The context of the current study reflects a policy of *providing* immediate services (illustrated by the General Medical Service funding for this project) rather than a longer term focus of developing and evaluating effective services. One of the most useful policy directives would therefore be the encouragement to tackle this important issue by channelling funding and expertise in to health service research which is close to practitioners (Culyer, 1998). Done properly this would require a policy *commitment to research, evaluation and development and consequent dissemination.*

In an ideal world the evaluation of health service effectiveness would be synthesised into relevant policy. There is, unfortunately, a limit as to how much any (single) evaluation affects the decision-making process within NHS management practice. Policy making is political and pragmatic, but rarely evidence-based and more often evidence-informed (Brown, 1998). This haphazard and often 'irrational' decision making process is disheartening for researchers. It has been said that,

> "organisations gather data and do not use them often, ask for more and then do not use them, make decisions and look for relevant information afterwards" (St Leger et al, 1992, p186).

It has also been argued that the whole process is "political" such that investment in evaluative exercises can be useful for their symbolic rather than factual content (Robinson, 1998 see chapter one). Similarly, it has been suggested that "this ritualistic aspect of decision making means outcomes are often of less importance than the process" (St Ledger et al, 1992 p185) for example, being seen to investigate certain issues. It was noted in the first chapter that Robinson (1995) suggested that the increase in primary health care activity for homeless people may be an attempt to divert attention away from the politically sensitive issue of housing availability, making the providers of primary care into scapegoats. Whether this is the case or not, the extra house building required to meet the current UK social housing demand would take years. In the mean time effective ways of tackling the health problems are needed whilst housing solutions are sought. Indeed, a proportion of those who are temporarily homeless, such as those experiencing family crises such as domestic violence, require immediate primary health care services.

It is therefore difficult to determine if the lack of evaluation in the other funded DoH projects (1992-1996) was a missed opportunity due to funding restrictions and resource constraints or whether it was *political.* Either way, it is important to recognise that this was not the only *missed opportunity* to evaluate different types of primary health care for homeless in the UK (Williams, 1995) and mental health care (rough sleepers initiative, Croft-White, 1998). Both cases illustrate a piecemeal approach to evaluation of health service effectiveness.

A further criticism which is often levelled at those who conduct evaluations could be applied here on a national level; that is, the researchers and practitioners are often divorced from the decision-making process. And to make matter worse, in the case of much health service research, those individuals who initiated the funding have often moved on by the time projects come to fruition or political priorities have also changed. The links between research and policy can be tenuous.

> "Randomised controlled experiments appear to be politically and logistically feasible only when the program being tested is one that policy makers might consider for future enactment and implementation" (Rossi and Wright, 1986; p341)

Fortunately, for the Family Health Project, the local health authority were able to consider the further 'enactment' of the health advocacy approach after 1996 - the health policy decision making process was positively influenced. The project described in this thesis developed from a local need to solve the problem of an over-stretched primary health care team; it was perceived as relevant and helpful for local evidence based decision-making. Liverpool Health Authority demonstrated its confidence in the practice-based health advocacy/ anticipatory care model by funding an expansion of the project into two other deprived neighbourhoods (Gaulton-Berks, 1998). The health advocate has taken on the role of primary care development nurse and now covers a wider area for outreach work and provides training and supervision of lay support workers based in several practices. From the initial idea for the original project in the Liverpool Health Authority's deprivation strategy (1992), the *key stakeholders* in the project were Liverpool Health Authority (previously the Family Health Services Authority) and Princes Park Health Centre. The consolidation of this relationship was an essential element of the system changes necessary to respond to the findings of the study, as "roll out" funding had to be found locally.

> "Relevant data also provides additional justification for both continuing and for increased funding at local, state, regional and federal levels of responsibility"(Stretch & Kreuger 1992 p84-5).

The fact that the research findings were used locally in this case illustrates the fusion of research and development rather than its separation. A combination of the production and dissemination of the findings, as well as a conducive culture to research, have enabled developmental implementation locally.

Final conclusion

The objectives of this thesis have been met. The research was not separate from the real world; the whole impetus behind the project was to inform local policy. The study examined two hypotheses. First, a health advocate working with a Primary Health Care Team in an inner city health centre can improve the health related quality of life of homeless patients. Second, the health advocate can reduce the workload of GPs and other health workers in relation to homeless patients. One is able to infer from three highly deprived, highly morbid and reasonably comparable homeless samples that early intervention, in the form of health advocacy, has positive effects in health related quality of life. The benefit to patients was not, however, accompanied by increased workload at the health centre, despite the emphasis on pro-active health needs assessment for patients. No significant extra relative costs were associated for this extra care.

For homeless people, the recommendations outlined should result in evidence-based health care, better care and less wastage. The aspects of health care that are worth reiterating in this study are: the provision of wider access to health care by routine registration of homeless people; using outreach; early intervention and advocacy or case management and providing the client with continuity of care and greater integration into mainstream services.

There is still a long way to go before health and social services managers have enough evidence to inform rational decision making on what and how services for homeless people should be provided. Given the relatively early stage of research in this area it was particularly important to provide a detailed level of analysis and systematically chart exactly what other relevant research has been done to date. It is clear that future services need to operate within a policy of commitment to research, evaluation and development and consequent dissemination.

In terms of research, the recommendations should result in a more coherent progression from needs assessment research with cycles of implementation and evaluation which 'move forward' rather than re-iterative and unproductive activity of describing the problems of homelessness. It is hoped that the dissemination of this study will stimulate the development of more focused research on interventions for homeless people using all the evidence marshalled here. There could be signs that we may be entering a new phase in homelessness research. London NHS Executive recently commissioned a rapid review of services for homeless people for the London Health Strategy and there are a number of researchers calling for more evaluative research in Britain (Power et al, 1999; Victor, 1996). The development of the Campbell Collaboration (Davies et al, 1999), with its strong links with the US may also help to disseminate the work that has already been carried out in this area. At present, the problem is not the lack of relevant information but a reluctance to modify practice, that is, to find out what is known and implement the results of the research by changing practices accordingly. Despite the seriousness of the problems associated with homelessness, these individuals often fail to receive services because of a non-responsive service system ill-prepared to meet their needs. Managerial commitment is needed to ensure that effective health services are provided for this marginalised group.

> "Real change requires - as always - professional and political leadership, unceasing commitment from the top, a clear vision of what is needed, resources and a strategic approach." (Smith, 1999 p1590)

APPENDIX I

DATA EXTRACTION TOOL FOR SYSTEMATIC REVIEW INTERVENTION STUDIES (see chapter 2)

Authors **Name of project** Is this a new service?	
Country	
Organisation - e.g. health	
Number of sites	
Study design	
Aim of study (intervention)	
What were the hypotheses? Where they answered?	
Funding What organisation has provided the funding?	
Costs Is cost effectiveness measured?	
Population description Inclusion / exclusion criteria Predominant characteristics of participating clients Intake dates - start - finish - length	Age (mean) Gender Ethnicity Other (specify)

Methodology Can we see how the data was collected? - Were interviewers used?	Specify who collected the data e.g. case managers or research assistants
- Were incentives given?	Specify
- Were outcome measures validated?	This should also be answered for each measure
- Follow up or tracking?	If tracking used - specify how frequent - this will only be used for the descriptive studies
- Were process measures used (independent variable)	
Does the research address adverse effects?	
Length & number of follow up periods How many? Follow up one - Follow up two - Follow up three - Follow up four - Was follow up long enough?	
Implementation of protocol Were the groups treated identically other than for the named interventions? What were the sources of bias / have they been discussed? Was the protocol adhered to?	
Randomisation - Was randomisation reported? - Was the assignment to treatment groups really random? - Was random assignment concealed? (less gives greater treatment effect) - Was randomisation of the participants blinded? - Were those assessing outcomes blind to the treatment allocation?	

Intervention - Agency (health/ ssd/ vol) - Residential / community / outreach / office based care / appointments only / drop in - Multidisciplinary - individual - organisation - Professional groups (e.g. nurse, social worker, lay) - Describe: integrated / separate/ other/ not applicable/ not clear - Care provided - distinguish between giving care and providing access to care or both Provides care provides access to care provides care and access to care not applicable none not clear - Duration of contact / Intensity / Frequency - Treatments compared	
Describe Control/ Comparison Treatment	
Sample size - Intervention group(s) (n=) - Control group(s) (n=) - Total (n=)	

Final Follow up period taken for results table
Outcomes
Were objective outcomes measured? E.g. homelessness
Were subjective outcomes measured? E.g. self rated quality of life
What is the magnitude of the beneficial effect *"+" (statistically significant -positive), "0" (no sig. differences) or "-" (statistically significant-negative).*

Number and Description of Outcomes

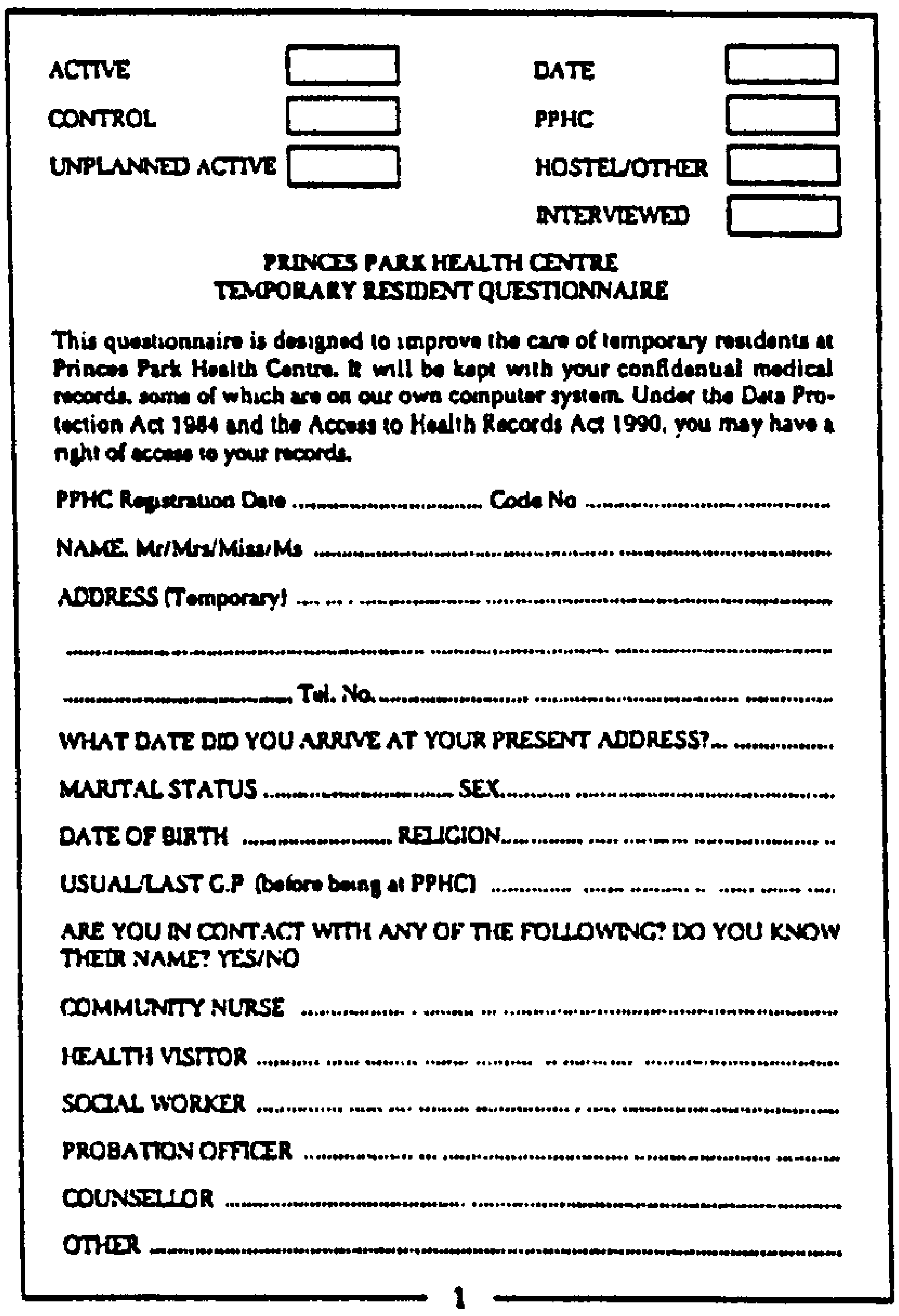
Define	**Details** (validated?)	**Significance / Effect size** **Time** **Groups**

Analysis What were the statistical methods and analysis? Were they appropriate? Are the results analysed on an intention to treat basis? Were the control and treatment groups comparable at entry? If not comparable - what variables and why?	

Attrition Attrition overall Attrition time 1 (I) (C) Attrition time 2 (I) (C) Attrition time 3 (I) (C) Attrition time 4 (I) (C) Was relatively complete follow up achieved? Are dropouts and missing data appropriately handled in the analysis? Non-respondents Vs respondents - was the analysis completed? Did follow-ups differ from non-respondents? Were the outcomes of people who withdrew described and included in the analysis?	
OVERALL CONCLUSIONS What are the main conclusions? Is the evidence appropriately interpreted? **What were the main sources of bias (if any)?** **EVIDENCE** Was there evidence of an effective intervention? Is the study inconclusive (no evidence of effect) or Does it show a particular strategy did not work (evidence of no effect)? **How difficult was data extraction from the article / report?**	

Appendix II

Temporary Resident Questionnaire



ACTIVE ☐ DATE ☐

CONTROL ☐ PPHC ☐

UNPLANNED ACTIVE ☐ HOSTEL/OTHER ☐

INTERVIEWED ☐

PRINCES PARK HEALTH CENTRE
TEMPORARY RESIDENT QUESTIONNAIRE

This questionnaire is designed to improve the care of temporary residents at Princes Park Health Centre. It will be kept with your confidential medical records, some of which are on our own computer system. Under the Data Protection Act 1984 and the Access to Health Records Act 1990, you may have a right of access to your records.

PPHC Registration Date .... Code No ....

NAME. Mr/Mrs/Miss/Ms ....

ADDRESS (Temporary) ....

....

.... Tel. No. ....

WHAT DATE DID YOU ARRIVE AT YOUR PRESENT ADDRESS? ....

MARITAL STATUS .... SEX ....

DATE OF BIRTH .... RELIGION ....

USUAL/LAST G.P (before being at PPHC) ....

ARE YOU IN CONTACT WITH ANY OF THE FOLLOWING? DO YOU KNOW THEIR NAME? YES/NO

COMMUNITY NURSE ....

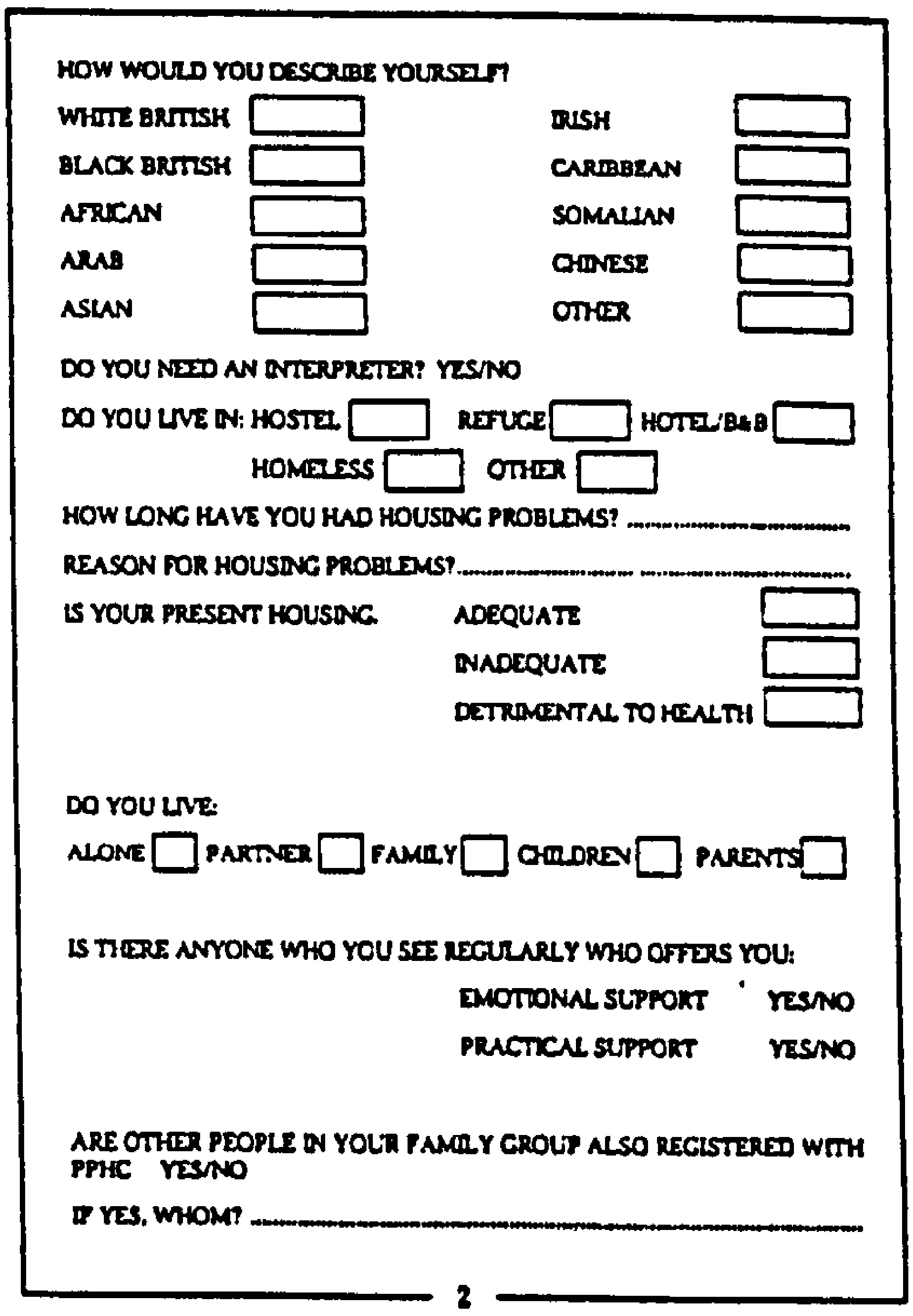
HEALTH VISITOR ....

SOCIAL WORKER ....

PROBATION OFFICER ....

COUNSELLOR ....

OTHER ....



HOW WOULD YOU DESCRIBE YOURSELF?

WHITE BRITISH ☐ IRISH ☐

BLACK BRITISH ☐ CARIBBEAN ☐

AFRICAN ☐ SOMALIAN ☐

ARAB ☐ CHINESE ☐

ASIAN ☐ OTHER ☐

DO YOU NEED AN INTERPRETER? YES/NO

DO YOU LIVE IN: HOSTEL ☐ REFUGE ☐ HOTEL/B&B ☐

HOMELESS ☐ OTHER ☐

HOW LONG HAVE YOU HAD HOUSING PROBLEMS? ....

REASON FOR HOUSING PROBLEMS? ....

IS YOUR PRESENT HOUSING. ADEQUATE ☐

INADEQUATE ☐

DETRIMENTAL TO HEALTH ☐

DO YOU LIVE:

ALONE ☐ PARTNER ☐ FAMILY ☐ CHILDREN ☐ PARENTS ☐

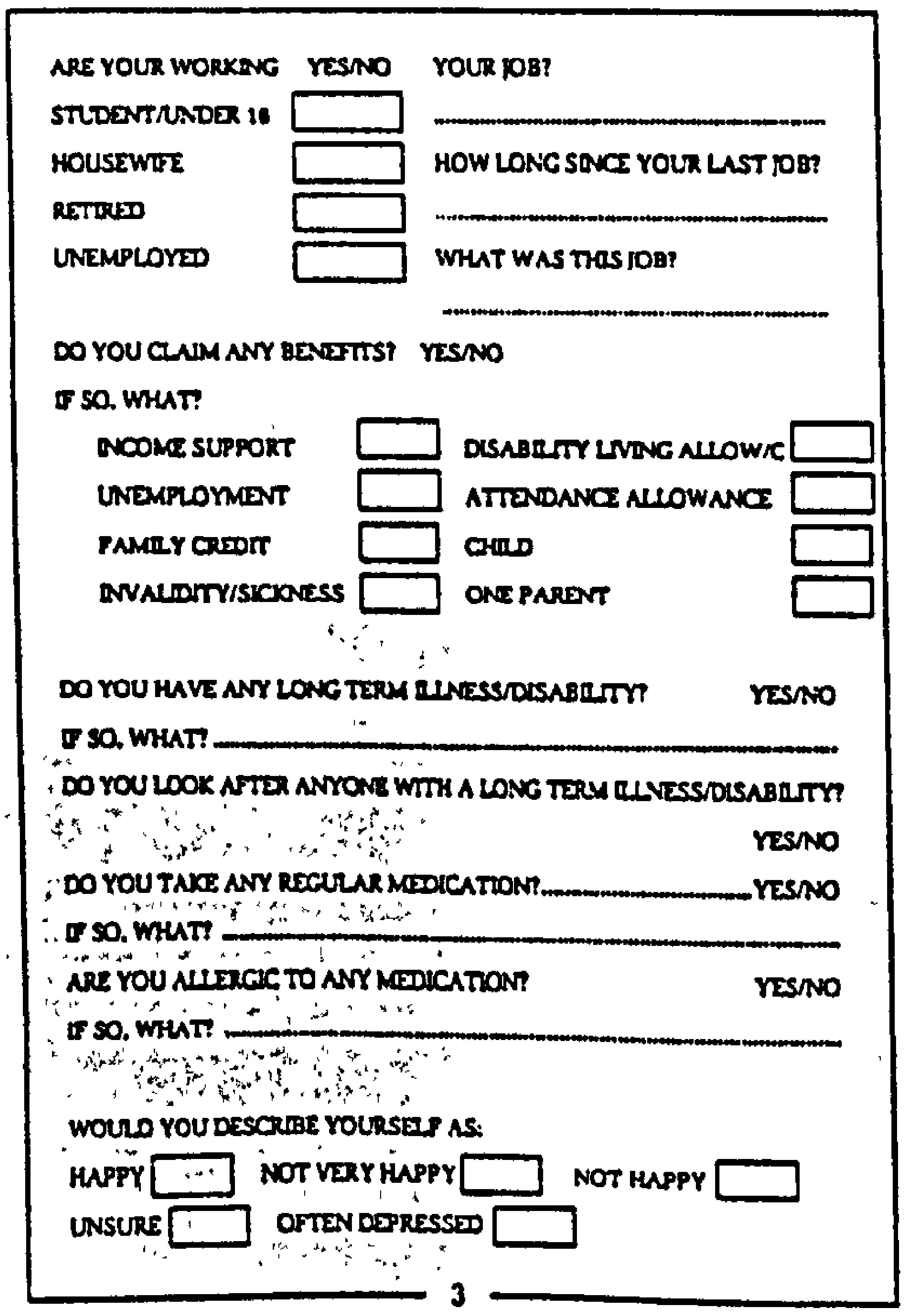
IS THERE ANYONE WHO YOU SEE REGULARLY WHO OFFERS YOU:

EMOTIONAL SUPPORT YES/NO

PRACTICAL SUPPORT YES/NO

ARE OTHER PEOPLE IN YOUR FAMILY GROUP ALSO REGISTERED WITH PPHC YES/NO

IF YES, WHOM? ....



ARE YOUR WORKING YES/NO YOUR JOB?

STUDENT/UNDER 16 ☐ ....

HOUSEWIFE ☐ HOW LONG SINCE YOUR LAST JOB?

RETIRED ☐ ....

UNEMPLOYED ☐ WHAT WAS THIS JOB?

....

DO YOU CLAIM ANY BENEFITS? YES/NO

IF SO, WHAT?

INCOME SUPPORT ☐ DISABILITY LIVING ALLOW/C ☐

UNEMPLOYMENT ☐ ATTENDANCE ALLOWANCE ☐

FAMILY CREDIT ☐ CHILD ☐

INVALIDITY/SICKNESS ☐ ONE PARENT ☐

DO YOU HAVE ANY LONG TERM ILLNESS/DISABILITY? YES/NO

IF SO, WHAT? ....

DO YOU LOOK AFTER ANYONE WITH A LONG TERM ILLNESS/DISABILITY? YES/NO

DO YOU TAKE ANY REGULAR MEDICATION? .... YES/NO

IF SO, WHAT? ....

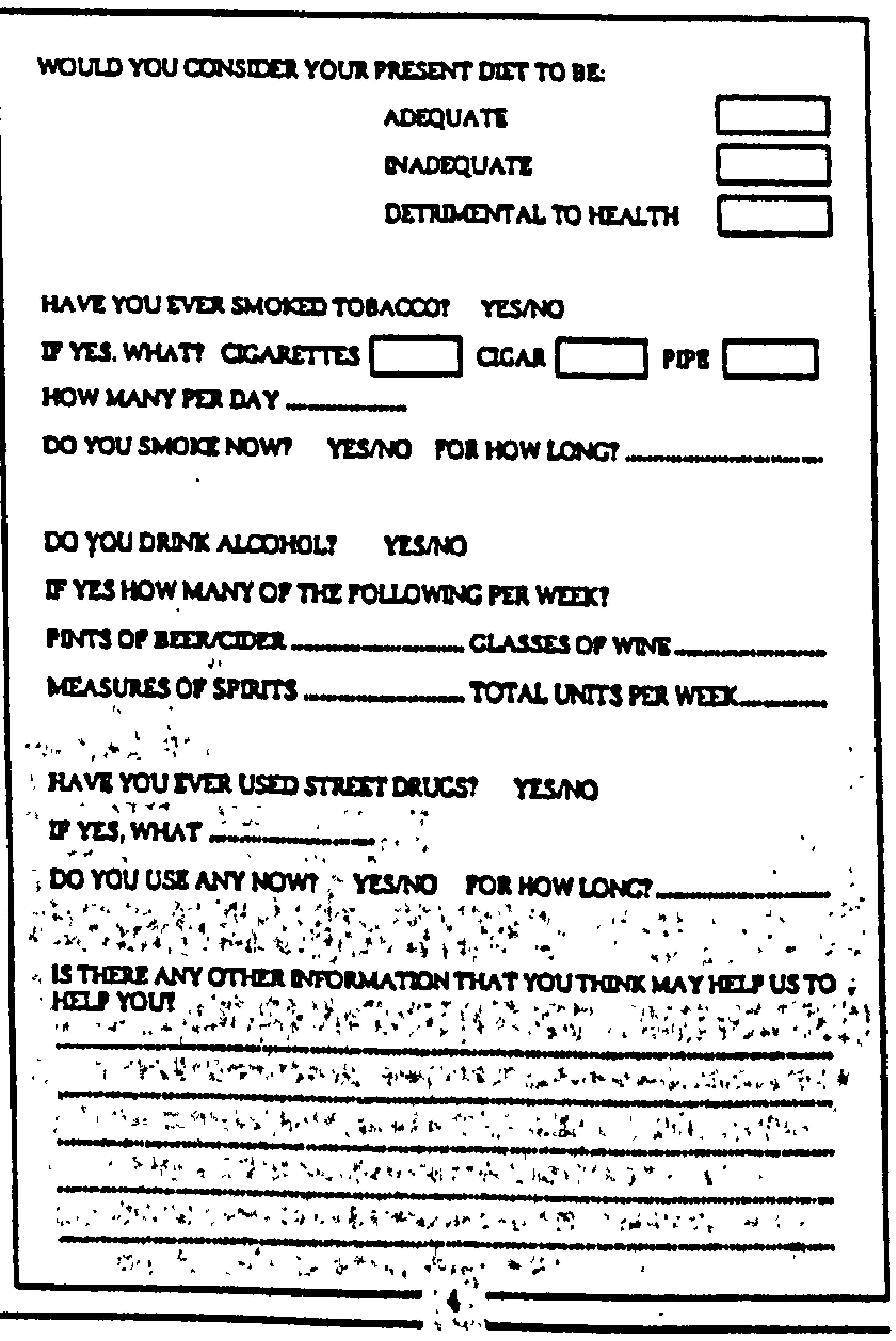
ARE YOU ALLERGIC TO ANY MEDICATION? YES/NO

IF SO, WHAT? ....

WOULD YOU DESCRIBE YOURSELF AS:

HAPPY ☐ NOT VERY HAPPY ☐ NOT HAPPY ☐

UNSURE ☐ OFTEN DEPRESSED ☐



WOULD YOU CONSIDER YOUR PRESENT DIET TO BE:

ADEQUATE ☐

INADEQUATE ☐

DETRIMENTAL TO HEALTH ☐

HAVE YOU EVER SMOKED TOBACCO? YES/NO

IF YES, WHAT? CIGARETTES ☐ CIGAR ☐ PIPE ☐

HOW MANY PER DAY ....

DO YOU SMOKE NOW? YES/NO FOR HOW LONG? ....

DO YOU DRINK ALCOHOL? YES/NO

IF YES HOW MANY OF THE FOLLOWING PER WEEK?

PINTS OF BEER/CIDER .... GLASSES OF WINE ....

MEASURES OF SPIRITS .... TOTAL UNITS PER WEEK ....

HAVE YOU EVER USED STREET DRUGS? YES/NO

IF YES, WHAT ....

DO YOU USE ANY NOW? YES/NO FOR HOW LONG? ....

IS THERE ANY OTHER INFORMATION THAT YOU THINK MAY HELP US TO HELP YOU?

....

....

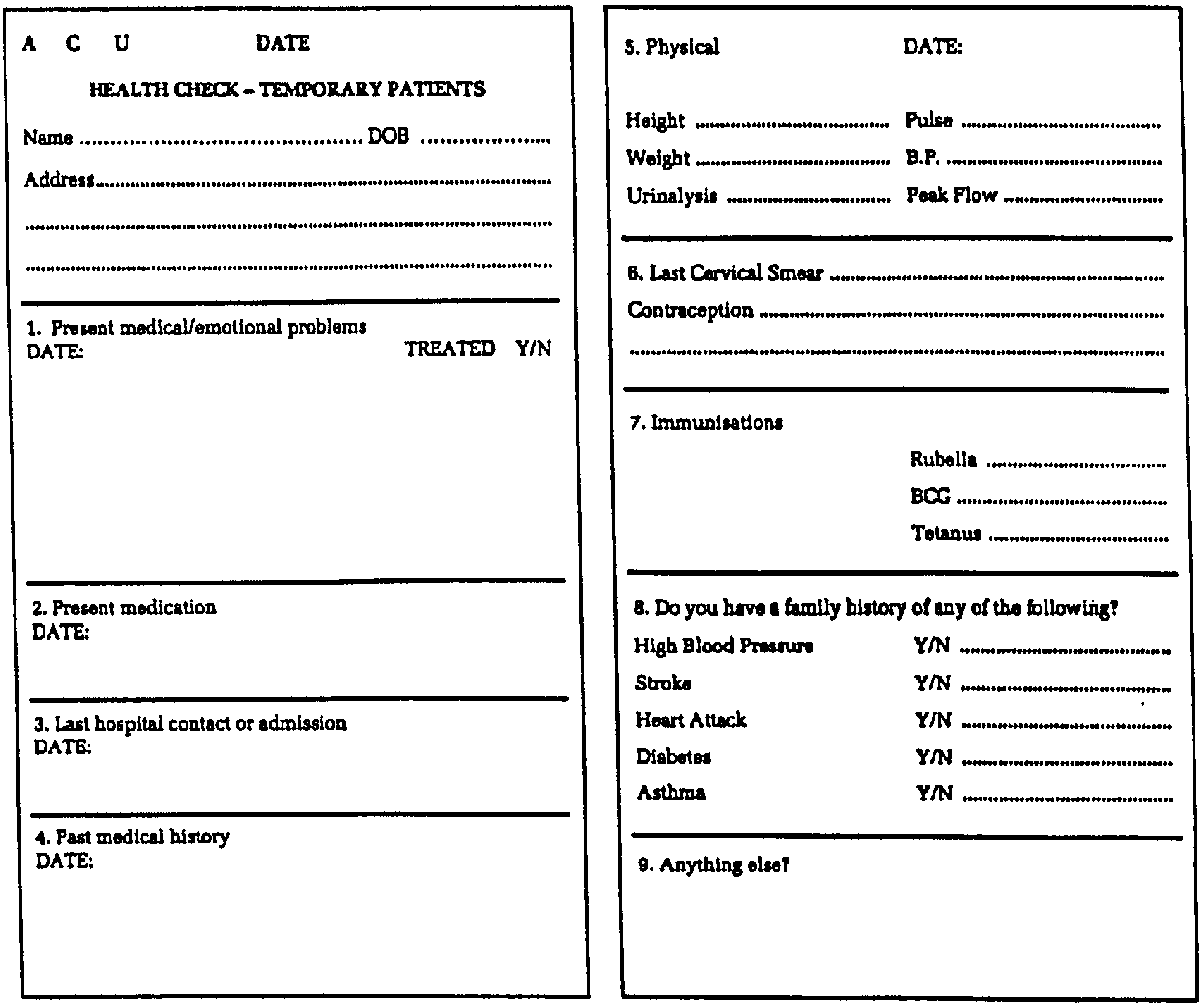
....

....

....

Appendix III

Health History Questionnaire



A C U DATE

HEALTH CHECK - TEMPORARY PATIENTS

Name .... DOB ....

Address...

....

....

1. Present medical/emotional problems
DATE: TREATED Y/N

2. Present medication
DATE:

3. Last hospital contact or admission
DATE:

4. Past medical history
DATE:

5. Physical DATE:

Height .... Pulse ....

Weight .... B.P. ....

Urinalysis .... Peak Flow ....

6. Last Cervical Smear ....

Contraception ....

....

7. Immunisations

Rubella ....

BCG ....

Tetanus ....

8. Do you have a family history of any of the following?

High Blood Pressure Y/N ....

Stroke Y/N ....

Heart Attack Y/N ....

Diabetes Y/N ....

Asthma Y/N ....

9. Anything else?

APPENDIX IV

The Nottingham Health Profile

Please do not
write in this
margin.

Listed below are some problems people might have in their daily lives.

Read the list carefully and put a tick in the box under YES for any problem that applies to you AT THE MOMENT. Tick the box under NO for any problem that does not apply to you.

PLEASE ANSWER EVERY QUESTION. If you are not sure whether to answer yes or no, tick whichever answer you think is MOST true at the moment.

	YES	NO
I'm tired all the time	☐	☐
I have pain at night	☐	☐
Things are getting me down	☐	☐

	YES	NO
I have unbearable pain	☐	☐
I take tablets to help me sleep	☐	☐
I've forgotton what it's like to enjoy myself	☐	☐

	YES	NO
I'm feeling on edge	☐	☐
I find it painful to change position	☐	☐
I feel lonely	☐	☐

Please turn over

	YES	NO
I can only walk about indoors	☐	☐
I find it hard to bend	☐	☐
Everything is an effort	☐	☐

	YES	NO
I'm waking up in the early hours of the morning	☐	☐
I'm unable to walk at all	☐	☐
I'm finding it hard to make contact with people	☐	☐

REMEMBER IF YOU ARE NOT SURE WHETHER TO ANSWER 'YES' OR 'NO' TO A PROBLEM, TICK WHICHEVER ANSWER YOU THINK MORE TRUE AT THE MOMENT.

	YES	NO
The days seem to drag	☐	☐
I have trouble getting up and down stairs or steps	☐	☐
I find it hard to reach for things	☐	☐

	YES	NO
I'm in pain when I walk	☐	☐
I lose my temper easily these days	☐	☐
I feel there is nobody I am close to	☐	☐

Please turn over

	YES	NO
I lie awake for most of the night	☐	☐
I feel as if I'm losing control	☐	☐
I'm in pain when I'm standing	☐	☐

	YES	NO
I find it hard to dress myself	☐	☐
I soon run out of energy	☐	☐
I find it hard to stand for long (e.g. at the kitchen sink, waiting for a bus)	☐	☐

	YES	NO
I'm in constant pain	☐	☐
It takes me a long time to get to sleep	☐	☐
I feel I am a burden to people	☐	☐

	YES	NO
Worry is keeping me awake at night	☐	☐
I feel that life is not worth living	☐	☐
I sleep badly at night	☐	☐

Please turn over

	YES	NO
I'm finding it hard to get on with people	☐	☐
I need help to walk about outside (e.g. a walking aid or someone to support me)	☐	☐

	YES	NO
I'm in pain when going up and down stairs or steps	☐	☐
I wake up feeling depressed	☐	☐
I'm in pain when I'm sitting	☐	☐

NOW PLEASE GO BACK TO PAGE 1 AND MAKE SURE THAT YOU HAVE ANSWERED 'YES' OR 'NO' TO EVERY QUESTION, ON ALL FOUR PAGES OF THE QUESTIONNAIRE.

THANK YOU FOR YOUR HELP

Appendix V

The Life Fulfilment Scale
(Adapted for the Family Health Project)

Listed below are various aspects of life. People disagree about how important each aspect is. We want to know how important you feel each aspect to be, **regardless of whether or not it applies to you personally.** For each item, please ring the number which indicates your feelings about the importance of that item. For example, if you feel that a good family life is very important, ring 4; if you think it is fairly important, ring 3; and so on. **Please answer all the items.**

	Very important	Fairly important	Not very important	Not at all important
A) A good family life	4	3	2	1
B) Having close friends you can confide in	4	3	2	1
C) A happy marriage (or similar relationship)	4	3	2	1
D) Being able to do the things you enjoy in your spare time	4	3	2	1
E) Being in good health	4	3	2	1
F) Being happy with yourself as a person	4	3	2	1
G) Having a secure and stable job	4	3	2	1
H) Being happy with the area where you live	4	3	2	1
I) Having housing which meets your needs	4	3	2	1
J) Having enough money to do most of the things you want to	4	3	2	1

Now we would like to know how satisfied you are with your own life. For each question below, please ring the number which best shows how you feel.

A) How satisfied are you, in general, with your family life?

a) Very satisfied 1
b) Satisfied 2
c) Dissatisfied 3
d) Very dissatisfied 4

B) How happy do you feel about the number of close friends you have – that is, friends you feel you can confide in?

a) Very satisfied 1
b) Fairly happy 2
c) Not very happy 3
d) Not at all happy 4

C) How satisfied are you, in general, with the relationship you have with your spouse/partner?

a) Very satisfied 1
b) Satisfied 2
c) Dissatisfied 3
d) Very dissatisfied 4
e) Does not apply – no spouse/partner 5

D) How much do you feel able to do the things you enjoy in your spare time?

a) Often 1
b) Sometimes.. 2
c) Rarely 3
d) Never 4

E) How would you describe your health now?

a) Excellent 1
b) Good 2
c) Fair 3
d) Poor 4

F) How happy are you with the way you feel about yourself?

a) Very happy 1
b) Fairly happy 2
c) Not very happy.. 3
d) Not at all happy 4

G) How much do you worry about the security of your job?

a)	A lot	1
b)	Some	2
c)	A little	3
d)	Not at all	4
e)	Does not apply – not working at present	5

H) How satisfied are you, in general, with the area that you live?

a)	Very satisfied	1
b)	Satisfied	2
c)	Dissatisfied	3
d)	Very dissatisfied	4

I) How satisfied are you, in general, with your present housing conditions?

a)	Very satisfied	1
b)	Satisfied	2
c)	Dissatisfied	3
d)	Very dissatisfied	4

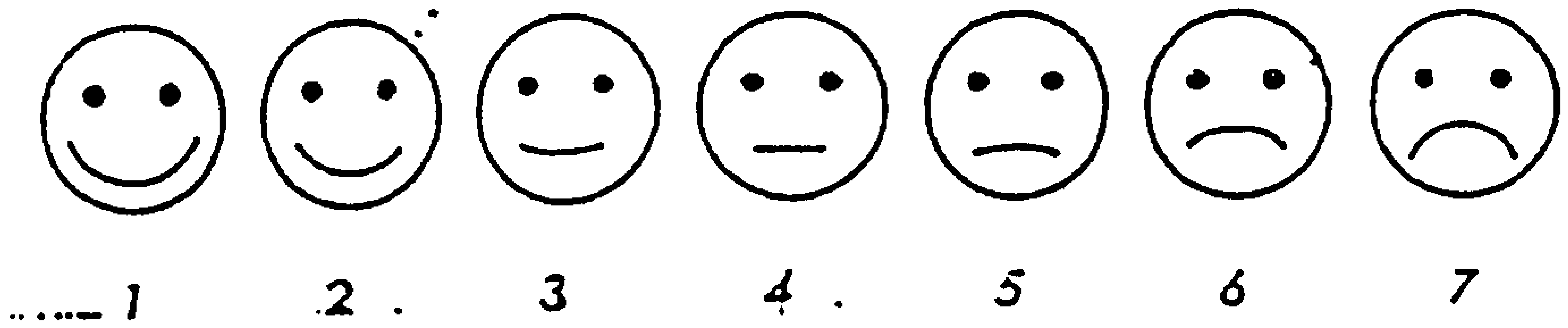
J) How satisfied are you with the amount of money you have coming in?

a)	Very satisfied	1
b)	Satisfied	2
c)	Dissatisfied	3
d)	Very dissatisfied	4

FACES SCALE

Which of the faces below best describes how you feel about your life as a whole?

(Please ring the number under the face which **best** shows how you feel)



APPENDIX V

LIFE FULFILMENT SCALE

Method of scoring: description and interpretation

To yield an overall fulfilment score the scores for importance and satisfaction are multiplied for each item and the discrepancy score is established by subtracting the obtained score from the ideal score. An example of the scoring system is as follows: if a patient rated their family as very important (score of 4) but only rated their satisfaction with their family as only satisfied (score of 3) then their total score (actual score) would be 12. Their ideal score would be 16, the result of them being very satisfied with their family who they consider to be very important. The discrepancy score is the difference between the ideal and actual score (score of 4). The overall life fulfilment is summation of the discrepancy scores. The smaller the discrepancy score the higher the level of fulfilment (Baker et al, 1994). The following box and tables provide further information to aid interpretation of scores.

Box A5.1 Life Fulfilment Scale Scores

	Maximum fulfilment (score)	**Minimum fulfilment (score)**
• **Item fulfilment discrepancy score** The difference between the ideal and actual score. This is best explained by a formula: Item discrepancy score = Importance score x (4 - Satisfaction score). This score is computed for each of the ten items in the scale.	0	12
• **Overall fulfilment discrepancy score** This is the summation of the ten item discrepancy scores.	0	120
• **Personal fulfilment discrepancy score** This is the summation of the discrepancy scores of the first 6 items in the scale.	0	72
• **Material fulfilment discrepancy score** This is the summation of the discrepancy scores of the last 3 items in the scale.	0	36

Table A5.1 demonstrates the values attributed to every possible item response on the Life Fulfilment Scale.

Table A5.1: Life Fulfilment Scale: Discrepancy values attributed to each possible item rating

	Importance rating			
Satisfaction rating	*Not at all important*	*Not important*	*Fairly important*	*Very important*
Very dissatisfied	3	6	9	12
Dissatisfied	2	4	6	8
Satisfied	1	2	3	4
Very satisfied	0	0	0	0

A number of examples shown in Table A5.2 might aid the interpretation of discrepancy scores. For example, if the average improvement in overall life fulfilment is 20 points (overall discrepancy score decreases by 20 points or change score = 20 points), this may have occurred as a result of a number of changes in importance or satisfaction levels. Of course, a change of 20 points, or any other amount, in the overall life fulfilment discrepancy score may have occurred due to any number of score permutations.

Table A5.2 Interpreting change scores: two examples

Description of change in satisfaction and importance on the Life Fulfilment Scale	**Amount of change**
Example One Say three item discrepancy scores change: the importance scores remained constant over time, at very important (4) on all three items, yet on two of the items the rated satisfaction increased from very dissatisfied (1) to satisfied (3);	- 16
On the third item the satisfaction rose from dissatisfied (2) to satisfied (3).	- 4
Example Two Or it may have been that the reduction in 20 points in overall discrepancy score may have come from changes in both importance and satisfaction scores:	
Say four item discrepancy scores change: on the first item importance score starts as fairly important (3), and satisfaction is rated as dissatisfied (2). Both change to very important (4) and to satisfied (3) respectively.	- 2
On the second item the importance score shifts from fairly important (3) to very important (4) and the satisfaction shifts from very dissatisfied (1) to satisfied (3).	- 5
On the third item the importance score remains at very important (4) but the satisfaction score shifts from very dissatisfied (1) to very satisfied (3).	-12
On the fourth item that changes the importance score rises from not very important (2) to fairly important (2) and the satisfaction score rises from dissatisfied (2) to satisfied (3).	- 1

The values are negative because a negative change signifies an increase in fulfilment.

APPENDIX VI

VALIDITY AND RELIABILITY OF THE THREE HEALTH RELATED QUALITY OF LIFE INSTRUMENTS: COMPARISON OF HOMELESS AND RESIDENT ATTENDERS AT AN INNER CITY HEALTH CENTRE.

Introduction

This small scale study provides evidence of the validity for three standardised subjective health instruments: one of which measures distress (NHP), another provides a global rating of overall life satisfaction (Faces Scale) and the other is more patient centred in its approach (LFS). This is achieved by comparing the health related quality of life of a homeless and a resident population. This is a useful technique for validating perceived health measures: where the contrasting results from contrasting 'known groups' are compared (Hunt et al, 1986; Norman and Streiner, 1991). Previous research using one of the measures (NHP) indicated that the instrument could discriminate between populations. Hopton et al, 1992, found that in their study of social indicators of health needs for general practice, "not owning one's own home" emerged as the measure of socio-economic status that best predicted distress (measured by the NHP).

Hypotheses

The hypotheses tested are, first, that homeless people are less satisfied with their lives and more distressed than housed people. The objective here, is to measure construct validity by comparing how these different instruments measure health related distress and quality of life.

The second hypothesis tested was those who are experiencing high levels of distress will be overall less satisfied and fulfilled with life. The objective of this comparison is to provide evidence that the instruments have concurrent criterion validity by examining the association between scores on the different measures (correlation with the criterion measure).

Method

A matched sample of 60 temporarily registered homeless patients sampled for the main study reported in this thesis were compared with a sample of permanently registered patients who attended well person clinics at Princes Park Health Centre, a large inner city practice in Liverpool. The homeless sample was drawn from a larger sample of questionnaires collected for the main study (females n=153; males n=88). Questionnaires were collected from people temporarily housed in the area and temporarily registered with PPHC in the period 1993 - 1994. Questionnaires were completed at the health centre or at the respondent's place of residence at or around the time of registration.

The sampling procedure differed for the comparison sample: respondents were obtained from a larger sample of attenders of well person clinics (Females n=100; males n=20). Over a 12 month intake period (1994) each attender was asked to fill in the three standardised questionnaires and a patient information questionnaire (all of these were filled in on the same occasion). Response rates were not recorded, although it is known that not everyone agreed to filling in the questionnaires. This may have been due to lack of time, literacy, sight or mobility problems, or the patient may have been too ill or too distressed to fill in the questionnaires.

Both samples were then matched for age, sex and (where possible) living arrangements (ie, lives alone, with partner, with family with children) and relationship status. The number in the matched sample was 120 individuals, of whom 60 were homeless and 60 were housed. Background data was not available for 8 individuals in the comparison sample.

Statistical Analysis

The SPSS (version 7) package of statistical software was used to analyse the data (SPSS, 1995). Baseline demographic differences between the two samples were compared using Chi squared analysis (with continuity correction for two by two tables) for categorical variables and independent t-test for continuous variables. Concerns about skewed distributions particularly on the social isolation, pain and physical mobility NHP dimensions, require that the data are transformed using the square root (including log and anti-log transformations) and squared transformation techniques. The data were analysed in raw and transformed forms and the results were identical; for ease of understanding, un-transformed data are presented. The comparisons between the two groups used independent t-tests for all three measures. Correlations between scores on different sections of the NHP, the LFS and Faces Scale were calculated to compare the information provided by the three measures. Pearson's r was used as a measure of linear association, in that it assesses the extent to which higher scores on one variable are related to higher scores on another variable. The reliability of each instrument was examined by assessing its internal consistency; the extent to which all of the items within instruments, measure the same dimension. This was measured using Cronbach's alpha (Cronbach, 1951) and is based on the average correlation between items included in the instrument.

Results

Table A6.1 Background variables: Comparison of matched homeless and well person clinic attenders

	Homeless (n=60) %	Housed (n=52) %	X^2	p
Ethnic Group			1.61[b]	ns
White British	92	82		
Black British / other	8	18		
Relationship Status			3.32[b]	ns
In a relationship	80	63		
Not in a relationship	20	37		
Living Situation			2.35	ns
Alone	35	27		
With spouse/partner	10	13		
With spouse and children	23	25		
With children	30	29		
With parents	0	6		
Employment			35.40	<0.0001
Employed	3	52		
Unemployed	64	24		
Retired/medically retired /long term sickness	8	14		
Housewife	19	16		
Long term Illness			5.70[b]	<0.02
Reported	55	31		
Not reported	45	70		
Housing			4.60[b]	<0.05
Considered to be adequate	63	84		
Considered inadequate or detrimental to health	37	16		

[b] Yates correction factor

The samples were matched for age and sex (mean age of both samples was 35 years; each sample contained 44 women and 16 men). A significantly greater proportion of the homeless sample reported a long term illness and inadequate housing and a significant association was detected between employment status and housing.

Between group differences in Life Fulfilment

Table A6.2: The Life Fulfilment Scale mean discrepancy item scores: comparison of matched homeless patients and well person clinic attenders sample

	SAMPLE			
	Homeless (n=60)		Housed (n=60)	
	Mean	Std. Deviation	Mean	Std. Deviation
A good family life [a]	5.5167	4.2125	3.7500	2.5619
Having close friends [b]	4.1833	3.0169	2.7000	2.9245
A happy marriage [c]	3.7333	4.5206	2.0333	2.9051
Spare time activities [d]	5.1000	3.4331	3.6333	2.8580
Being in good health [e]	7.0333	3.0475	5.4333	2.8485
Being happy with yourself [f]	6.2000	3.5881	4.0333	2.7738
A secure job and stable job [g]	.9333	3.1562	3.1833	4.5117
Being happy where you live [h]	5.5614	3.6889	3.6833	3.3924
Housing that meets your needs [i]	6.1897	4.0930	3.9333	3.5837
Having enough money [k]	6.5167	3.7529	5.1356	3.2188

The highest possible score is 12 for each item and the lowest is zero.
A high score denotes low fulfilment.

Independent-samples t-tests
a. t=2.776df=97.393 p=.007
b. t=2.735df=117.886 p=.007
c. t=2.451df=100.631 p=.016
d. t=2.543df=114.244 p=.012
e. t= 2.971df=117.466 p=.004
f. t=3.701df=110.960 p=.000
g. t=-3.165df=105.589 p=.002
h. t=2.862df=112.938 p=.005
i. t=3.182df=112.889 p=.002
k. t=2.156df=114.888 p=.033

Table A6.2 compares the mean scores on each of the life fulfilment item discrepancy scores (for details on how these are computed see chapter 4). Higher discrepancy scores denote lower fulfilment. Thus, when compared with the well person clinic attenders sample, the homeless people are characterised by low life fulfilment. When a comparison was made on each of the 10 items, evidence of lower life fulfilment among homeless people was found on all 10 items. The greatest difference was found on the items; family, friends, health, self, area of residence and housing.

Table A6.3: The Life Fulfilment Scale mean aggregated discrepancy scores: comparison of matched homeless patients and well person clinic attenders sample

	SAMPLE			
	Homeless		Housed	
	Mean	Std. Deviation	Mean	Std. Deviation
Personal Fulfilment Score [a]	31.7667	14.9670	21.5833	9.3832
Material Fulfilment Score [b]	18.3509	8.0078	12.8136	7.8619
Overall Life Fulfilment Score [c]	51.3158	19.6434	37.4576	13.6878

A high score denotes low fulfilment.

Independent-samples t-tests

a. t=4.465 df=99.172 p=.000

b. t=3.758 df=114 p=.000

c. t=4.394 df=99.682 p=.000

Table A6.3 shows the aggregated personal and material subscale and overall fulfilment mean scores. Table A6.4 shows the overall satisfaction with life. The data reveals that on all four scores the measured difference between the two groups is statistically significant. The homeless sample was less fulfilled than the resident sample.

Table A6.4: The Faces Scale: comparison of matched homeless patients and well person clinic attenders sample mean scores

	SAMPLE			
	Homeless		Housed	
	Mean	Std. Deviation	Mean	Std. Deviation
Delighted-terrible faces scale [a]	4.19	1.68	3.02	1.23

The faces (see appendix v) denoted
1= delighted or extremely pleased
2= pleased
3= mostly satisfied
4= mixed
5= mostly dissatisfied
6= unhappy
7= terrible

a. t=4.298 df=102.123 p=.000

Table A6.5 shows the mean scores on the six dimensions of the NHP. The differences between the homeless and housed group were statistically significant on three of the six dimensions: emotional reactions, social isolation and sleep, with the homeless sample having more distress.

Table A6.5: The Nottingham Health Profile: comparison of matched homeless patients and well person clinic attenders sample mean scores

	Homeless (n=60)		Housed (n=60)	
	Mean	Std. Deviation	Mean	Std. Deviation
Emotional Reactions [a]	57.5600	28.5508	27.9398	19.6323
Social Isolation [b]	41.2259	30.9529	14.1778	15.6540
Sleep [c]	55.3739	30.7853	26.8104	28.3881
Energy	44.7929	38.7182	34.2203	34.2947
Pain	21.2109	24.5811	20.4358	20.9499
Physical Mobility	14.2395	11.4814	13.3986	11.9007

The highest possible score for each dimension is 100 and the lowest is zero.
A high score denotes a high level of distress.

Independent-samples t-tests

[a] $t=6\ 415$ $df=97.34$ $p=.000$

[b] $t=5.856$ $df=90.76$ $p=.000$

[c] $t=5.150$ $df=111.272$ $p=.000$

Table A6.6 also shows norms obtained from a large community population (Hunt and McKenna, 1991). Weighted norms were calculated to match the age and social class structure of this sample (class V was used for this study as samples were from a very deprived area of Liverpool). It is clear that on all the NHP dimensions, both the Liverpool samples scored significantly higher than the normative sample scores, with the homeless sample scoring the highest on all dimensions. Statistical significance could not be calculated due to the absence of standard deviations for the normative data.

Table A6.6: The Nottingham Health Profile: comparison of matched homeless patients and well person clinic attenders sample mean scores and the weighted mean reference values

	Homeless (n=60)	Housed (n=60)	Reference Value
Emotional Reactions	57.5600	27.9398	16.7200
Social Isolation	41.2259	14.1778	6.8700
Sleep	55.3739	26.8104	21.5900
Energy	44.7929	34.2203	15.4000
Pain	21.2109	20.4358	4.7200
Physical Mobility	14.2395	13.3986	3.6500

The highest possible score for each dimension is 100 and the lowest is zero.
A high score denotes a high level of distress.

Association Within and Between the NHP , the LFS and Faces Scale Scores

Associations between the NHP sections

It is clear from Table A6.7, as found by McKenna and Payne (1989), that pain and physical mobility scores correlated highly but were less closely associated with the other four sections. Most association was found between the emotional reactions with social isolation and sleep dimensions; 0.75 and 0.76 respectively, producing coefficients of association of 0.56 and 0.58.

Associations between the NHP, the LFS and the Faces Scale

The total discrepancy score for personal fulfilment was significantly correlated, at the 1% level, with emotional, social isolation, sleep and energy NHP dimensions. Moderate correlations (>0.6) were noted between the overall LFS score and personal fulfilment subscale with the emotional dimension. There was also a significant correlation (>0.5) between the overall fulfilment score and personal fulfilment subscale and the sleep and social isolation dimensions, but at a lower level of association.

The correlation between personal fulfilment subscale and the emotional reactions dimension is similar (0.61) to that found between personal fulfilment subscale and a depression scale (Hospital Anxiety and Depression Scale) in previous published work on validation of the LFS instrument (Baker, 1994).

The Faces Scale score was significantly correlated with the NHP emotional reactions (>0.6), social isolation and sleep (>0.4) dimensions as well as with overall fulfilment and personal fulfilment (>0.6).

Table A6.7 Correlation between the six Nottingham Health Profile dimensions, the Life Fulfilment Scale subscores, overall fulfilment score and the Faces Scale

	Emotional Reactions	Social Isolation	Sleep	Energy	Physical Mobility	Pain	Personal Fulfilment Score	Material Fulfilment Score	Overall Life Fulfilment Score	Faces Scale
NOTTINGHAM HEALTH PROFILE Emotional Reactions	1.000	.746**	.764**	.458**	.147	.179	.614**	.371**	.573**	.661**
Social Isolation	.746**	1.000	.585**	.287**	.080	.050	.542**	.192*	.455**	.591**
Sleep	.764**	.585**	1.000	.366**	.197*	.282**	.512**	.243**	.449**	.488**
Energy	.458**	.287**	.366**	1.000	.315**	.428**	.309**	.217*	.292**	.402**
Physical Mobility	.147	.080	.197*	.315**	1.000	.663**	.142	.040	.119	.175
Pain	.179	.050	.282**	.428**	.663**	1.000	.170	.151	.189*	.188*
LIFE FULFILMENT SCALE Personal Fulfilment Score	.614**	.542**	.512**	.309**	.142	.170	1.000	.346**	.888**	.677**
Material Fulfilment Score	.371**	.192*	.243**	.217*	.040	.151	.346**	1.000	.688**	.329**
Overall Life Fulfilment Score	.573**	.455**	.449**	.292**	.119	.189*	.888**	.688**	1.000	.640**
FACES SCALE	.661**	.591**	.488**	.402**	.175	.188*	.677**	.329**	.640**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Reliability of outcome scales.

Table A6.8: Internal consistency of the Life Fulfilment Scale and Nottingham Health Profile

	Alpha	Standardised Item Alpha
Life fulfilment Scale		
Personal subscale score	0.75	0.75
Material subscale score	0.60	0.59
Overall score	0.75	0.76
Nottingham Health Profile		
Emotional	0.84	0.85
Sleep	0.78	0.79
Social Isolation	0.72	0.72
Energy	0.68	0.70
Pain	0.83	0.85
Physical Mobility	0.73	0.75

All alphas were greater than 0.6, which is considered acceptable for research purposes (Sonquist and Dunkelberg, 1977). The lower internal consistency of the material fulfilment subscale might suggest that analysis of results using this measure be carried out item by item. The internal reliability is in fact adequate for this study as the individual items included in the instrument are measuring slightly different facets of the patient's life fulfilment or distress, and therefore would not be expected to be perfectly correlated.

Conclusion

In this appendix, validity has been measured by exploring the measurable difference between two contrasting populations on three health related quality of life instruments (Norman and Streiner, 1991). The scale was administered to homeless and resident samples in an inner city area of Liverpool. The comparison population was chosen with the purpose of testing the sensitivity of the instruments. Clear differences were found between the perceived health status and fulfilment of the homeless and the resident samples. It has been noted elsewhere that comparing homeless people with other very deprived populations may actually under estimate the health status of this group (ie less differences between groups are detected) (Victor, 1992). The test of validity in this study is therefore more stringent than say, a comparative sample drawn from a less deprived population. There are likely to be fewer differences between the homeless and resident samples in this study.

Evidence was also provided on the extent to which the sub-scores and dimensions of the three instruments are measures of the same construct. As expected, those subjects who perceived their level of distress to be high also perceived themselves to be less fulfilled and to be overall less satisfied with their life. The personal fulfilment scale and faces scale correlated well with the emotional distress dimension and can therefore be considered to assess aspects of psycho-social well-being. The material fulfilment scale clearly tapped patient's satisfaction with housing and financial status and was not highly correlated with NHP dimensions. The three instruments complement each other by measuring different aspects of health related quality of life. None of the items or dimensions are redundant (ie there were no near perfect correlations) and so it remains useful to use all three measures. This study has demonstrated face validity, construct validity, concurrent validity and internal consistency. The expected relationship between the two groups in all three measures allows one to conclude that the measures are valid and reliable in the context of a measuring the health related quality of life of a homeless population.

APPENDIX VII

COMPARATIVE COSTS OF THE HEALTH ADVOCACY APPROACH

The present study was not designed with the specific aim of measuring cost effectiveness, but the cost implications of the health advocacy intervention and usual services are considered. Table A7.1 shows the costs related to the workload measured. Costs have been calculated on cost per group and average cost per adult. Many of these costs have been calculated using the figures for primary care expenditures quoted in Med Economics (1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6) NHS pay: fees and allowances section). These costs are estimated to show approximate costs to the health service; the aim was to contrast the cost associated with the health advocacy approach with those incurred in normal practice (control group).

Breakdown of costs per group for the three years

Table A7.1: Health service costs for adults for initial 3 month temporary registration period

	Control Group	Intervention group registered by:		Significance
	(n=149)	Self (n=96)	FHW (n=155)	
	no. of events x cost	no. of events x cost	no. of events x cost	
GP consultation[1]	333 x 6.80 = 2264.40	229 x 6.80 = 1557.20	188 x 6.80 = 1278.40	***
GP visits[2]	42 x 29.27 = 1229.34	20 x 29.27 = 585.40	20 x 29.27 = 585.40	***
Practice Nurse[3]	21 x 1.50 = 31.50	28 x 1.50 = 42.00	20 x 1.50 = 30.50	ns
Referrals[4]	43 x 60.00 = 2580.00	19 x 60.00 = 1140.00	28 x 60.00 = 1680.00	ns
A&E[5]	8 x 31.00 = 248.00	6 x 31.00 = 186.00	9 x 31.00 = 279.00	ns
Medications[6]	279 x 7.21 = 2011.59	189 x 7.21 = 1362.69	166 x 7.21 = 1196.86	***
Investigations[7]	48 x 4.66 = 223.68	21 x 4.66 = 97.86	28 x 4.66 = 130.48	ns
DNA[8]	22 x 1.00 = 22.00	22 x 1.00 = 22.00	43 x 1.00 = 43.00	ns
Temporary reg.[9]	149 x 12.85 = 1914.65	96 x 12.85 = 1233.60	155 x 12.85 = 1991.75	ns
FHW consultations[10]	62 x 4.49 = 278.38	336 x 4.49 = 1508.64	868 x 4.49 = 3897.32	***
Cost per group over 3 years	£10,677.34	£7,735.39	£11112.71	ns
Mean cost per adult	£71.66	£80.58	£71.69	ns

Analysis of variance

*** p<.001 ns: not significant at 5% level of significance

Notes for Table A7.1

[1]**GP consultation costs**

Year	Total remuneration (salary + expenses)
1993	£62,303
1994	£64,057
1995	£64,648

Mean yearly remuneration £63,669.33 (Source: Med Economics 1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6).)(does not include annual leave)

Measuring the numbers of hours worked by GPs is a vexed issue and would constitute a study in its own right. It is expected that a full time GP within this practice would work more than 37.5 hours. For the purpose of consistency this figure has been used to calculate the cost of a consultation and visits.

The hourly rate was calculated as follows: £63,669.33 :- 52 weeks :- 37.5 hours = £32.65 per hour
The average length of contacts at PPHC has been estimated by the GPs as 12.5 minutes (4.8 per hour). The project average cost per consultation = £32.65 :- 4.8 = £6.80

[2]GP visit costs

It was not recorded whether visits were made in the daytime or nighttime: 50% of the cost of a night visit and 50% of the cost of a day visit is therefore used as a proxy cost.

GP day visit costs

GP hourly rate = £32.65 (see above). The average length of visits at PPHC has been estimated as 20 minutes (3 per hour)(PPHC practice manager). Thus the project average cost per day visit over the 3 years = £10.88

GP night visit costs

Year	Cost
1993	£46.65
1994	£47.85
1995	£48.45

The mean night visit cost for the 3 years = £47.65 (Source: Med Economics 1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6).)

As visits are estimated to be 50% day visits and 50% night visits:

the mean visit cost for the 3 years = $\frac{10.88 + 47.65}{2}$ = £29.27

[3]Practice nurse consultation costs

RGN G grade

Year	Salary
1993	£16,445
1994	£17,600
1995	£18,445

mean annual salary = £17496.67 (does not include annual leave) (Source: Med Economics 1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6).)

Hourly rate = £17496.67 :- 52 :- 37.5 = £8.97

It is estimated (PPHC practice nurse) that she spends on average 10 minutes per consultation.

Average cost per consultation = 8.97 :- 6 = £1.50

[4]Referral Costs

The bulk of GP referrals are for an outpatient treatment therefore average cost per outpatient appointment have been used to calculate this cost.

1993/4	£62.00	Source: Royal Liverpool & Broadgreen University Hospital Trust (Annual
1994/5	£58.00	Report 1994;1995)

Project average referral cost = £60.00

[5]Accident & Emergency Costs

1993/4	£35.00
1994/5	£27.00

Project average A&E cost = £31.00 (Source: Royal Liverpool & Broadgreen University Hospital Trust Annual Report 1994; 1995)

[6]Medications

This variable was calculated by summing the number of different medications prescribed to the temporary patient within 3 months.

As types of medication are unknown, accurate costs are impossible to calculate. As a proxy, the average cost per prescribed item for PPHC is used.

1993	£6.72
1994	£7.33
1995	£7.59

Project average medication cost £7.21 (Source: Prescription Pricing Authority; 1993,1994,1995).

[7]Investigations

The 3 most common investigations requested by GPs were used to calculated an average (proxy) cost on 1994 & 1995 local data (1993 were not available).

	FBC	MSU	U&E
1994	3.40	6.28	3.80
1995	3.30	7.08	3.60

Mean cost of 3 most requested investigations (1994 &'95) = £4.58 (Source: Royal Liverpool & Broadgreen University Hospital Trust)

[8]Did not attend appointment (DNA)

This is calculated by administration costs = £1 (personal communication; Shelia Scott, Practice Manager).

[9]Temporary registration fee

A temporary registration fee is reimbursed by the FHSA to the practice when a person registers with the practice for more than 15 days but less than 3 months.

1993	£12.60
1994	£12.90
1995	£13.05

project average temporary registration fee = £12.85 (Source: Med Economics 1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6).)

[10]FHW consultation costs

RGN G grade

Year	Salary
1993	£16,445
1994	£17,600
1995	£18,445

mean annual salary = £17496.67 (does not include annual leave) (Source: Med Economics 1994 Vol 15 (1); 1994 Vol 15 (11); 1995: Vol 16 (6).)

It is estimated that the mean length of time for a contact with the FHW was 30 minutes.
£17496.67:- 52 weeks :- 37.5 hours = £8.97 per hour
Cost per 30 minute contact with FHW = £4.49

The method for counting contacts with the FHW is based on contacts with each individual (see box 6.1, chapter 6). FHW costs for the control group relate to those people in this group referred to the health advocate (unplanned referrals).

CONCLUSION

Table A7.1 shows the estimated health service associated costs for the treatment of each adult in each group for the first three months temporary registration. The accuracy of these estimates might have been improved if the cost data had been collected prospectively, but contact data was collected prospectively so this is not a major issue for our conclusions. Although lower GP, home visits and medication costs were associated with the pro-actively registered intervention group, mean *total costs* were not lower. The cost for those adults in the intervention group who are registered by the FHW is almost identical to the cost for an adult in the control group: and although the self-registering intervention group (who enter the study in need of medical attention) are slightly higher, the difference in cost between the groups are not significant.

These results only show those costs which have been *measured* in this study and are not all inclusive; they do not show longer term implications for other health care workers after the patients are rehoused or implications to other agencies working with this client group. The data does, however, suggest that the cost implications of employing a health advocacy worker are very small in relation to the savings from reduced workload. This, together with the more appropriate service and the benefits in terms of quality of life, strengthens the evidence for the effectiveness of this approach to primary health care for homeless people in temporary accommodation.

REFERENCES

Access to Health. (1992a) Mental health problems and homelessness. London: Access to Health.

Access to Health. (1992b) Health and Homelessness Research Seminar Report. London: Access to Health.

Acheson D. (1998) Independent Inquiry into Health Inequalities. London: HMSO

Adams C, Power A, Frederick K and Lefebvre C. (1994) An investigation of the adequacy of MEDLINE searches for randomised controlled trials (RCTs) of the effects of mental health care. Psychological Medicine: 24; 741-748.

Adams C, Pantelis C, Duke P and Barnes T. (1996) Psychopathology, social and cognitive functioning in a hostel for homeless women. British Journal of Psychiatry: 168; 82-86.

Allison PJ, Locker D and Feine JS. (1997) Quality of life: a dynamic construct. Social Science and Medicine: 45; 2: 221-230.

Altman D. (1996) Better reporting of randomised controlled trials: the CONSORT statement. British Medical Journal: 313; 570-571.

Andrews F, and Withey S. (1976) Social Indicators of Well-Being. American's Perception of Quality of Life. New York: Plenum Press.

Annis H. (1979) Self-report reliability of skid row alcoholics. British Journal of Psychiatry: 134; 459-465.

Anthony H and Parsons F. (1994) Why measure outcomes? In Lewith G. Research Methods in Complementary Medicine. Aldridge.

Arblaster L, Lambert M, Entwhistle V, Forster M, Fullerton D, Sheldon T et al. (1996) A systematic review of the effectiveness of health service interventions aimed at reducing inequalities in health. Journal of Health Service Research Policy: 1; 93-103.

Argeriou M. (1992) Stabilisation services for homeless substance abusers. In: National Institute on Alcohol Abuse and Alcoholism. Community demonstration projects for alcohol and drug abuse treatment of homeless individuals. Vol II: Case studies of nine community demonstration grants. Rockville, MD: ROW Sciences Inc.

Audit Commission. (1989) Housing the homeless: the local authority role. London: HMSO.

Bachrach LL (1996) Lessons from America: semantics and services for mentally ill homeless individuals. In Dinesh Bhugra (ed.), Homelessness and Mental Health. London: Cambridge University Press.

Bahr H and Houts K. (1971) Can you trust a homeless man? A comparison of official records and interview responses by bowery men. Public Opinion Quarterly: 35; 374-382.

Baker R, Lakhani M, Fraser R and Cheater F. (1999) A model for clinical governance in primary care groups. British Medical Journal: 318; 779-783.

Baker R and Intagliata J. (1982) Quality of life in the evaluation of community support programs. Evaluation and Program Planning: 5; 69-79.

Baker G, Jacoby A, Smith D, Dewey M and Chadwick. (1994) The development of a novel scale to assess life fulfilment as part of the further refinement of a quality of life model for epilepsy. Epilepsia 35:591-596.

Baker G. (1992) The initial development, reliability and validity of a disease specific health-related quality of life model for patients with intractable epilepsy. Unpublished PhD thesis: University of Liverpool.

Balazs J. (1993) Health care for single homeless people. In Fisher K and Collins J. (eds) Homelessness, Health Care and Welfare Provision. London: Routeledge.

Barnardos. (1997) Doing time: families living in temporary accommodation in London. London: Barnardos in association with the London Homeless Forum.

Barrie-Foy G. (1997) The health of children in temporary accommodation. Health Visitor: 70 (4) 144-5.

Barry H, Carr-Hill R, and Glanville J. (1990) Homelessness and Health: What do we know? What should be done? York: University of York.

Bassuk E. (1985) Research perspectives on homelessness: A response to the APA recommendations on the homeless mentally ill. Psychosocial Rehabilitation Journal; VIII(4):31-4.

Baylis E. (1993) Models of health care provision. In Fisher K and Collins J. (Eds) Homelessness, Health Care and Welfare Provision. London: Routeledge.

Begg C, Cho M, Eastwood S et al. (1996) Improving the quality of reporting of randomised controlled trials: the CONSORT statement. JAMA: 276; 649.

Bentley A. (1994) Counselling and homelessness. Counselling: 5 (2); 132-134.

Benzeval M, Judge K and Whitehead M (eds). (1995) Tackling inequalities in health: an agenda for action. London: Kings Fund.

Bhugra D, Bhamra J and Taylor P. (1997) Users' views of a drop-in project for the homeless. International Journal of Social Psychiatry: 43 (2); 95-103.

Bhugra D. (1996) Young homeless and homeless families. In Dinesh Bhugra (ed.), Homelessness and Mental Health. London: Cambridge University Press.

Bickel R and Forsyth-Stephens A. (1983) Using case histories in an evaluation of community support programs. Psycho-social Rehabilitation Journal: 7 (1); 11-21.

Black D, Whitehead M, Townsend P and Davidson N. (1992) Inequalities in Health: the Black Report (rev. edn). London : Penguin.

Blasi GL. (1990) Social policy and social science research on homelessness. Journal of Social Issues: 46 (4); 207-219.

Boruch R. (1999). The Campbell Collaboration: a proposal for systematic, multi-national and continuous reviews of evidence. In Davies P, Petrosino A and Chalmers I. Report and papers from the Exploratory meeting for the Campbell Collaboration: Developing an infrastructure for international collaboration to prepare, maintain and promote the accessibility of systematic reviews of social and educational interventions. Convened by The School of Public Policy, University College London.

Bowling A. (1998) Measuring health: a review of quality of life measurement scales. (2nd edition) Milton Keynes: Open University Press.

Bowling A. (1995) What things are important in people's lives? A survey of the public's judgements to inform scales of health related quality of life. Social Science and Medicine: 41 (10); 1447-1462.

Bowling A. (1996) The effects of illness on quality of life: findings from a survey of households in Great Britain. Journal of Epidemiology and Community Health: 50; 149-155.

Bracht G and Glass G. (1968) The external validity of experiments. American Educational Research Journal: 5; 437-74

Braucht GN, Reichardt CS, Geissler LJ Bormann CA Kwiatkowski CF and Kirby MW. (1995) Effective services for homeless substance abusers. Journal of Addictive Diseases: 14(4); 87-109.

Brown M. (1998) Social science and mental health and government. ESRC seminar series: Social sciences and mental health developing the research agenda. University of Salford.

Brown C. (1994) Bill to ban 'queue-jumping' by homeless: New laws will end ; Independent: 07-19-1994.

Bubolz M, Eicher J Evers S and Sontag M. (1980) A human ecological approach to quality of life: conceptual framework and results of a preliminary study. Social Indicators Research, 7:103-136.

Buckner JC, Bassuk EL and Zima BT. (1993) Mental health issues affecting homeless women: implications for intervention. American Journal of Orthopsychiatry: 63 (3); 385-399.

Buckner JC and Bassuk EL. (1997) Mental disorders and service utilisation among youths from homeless and low-income housed families. Journal of American Academic Children and Adolescent Psychiatry: 36 (7);890-900.

Bucquet D and Curtis S. (1986) Socio-demographic variation in perceived illness and the use of primary care: the value of community survey data for primary care service planning. Social Science and Medicine: 23; 737-744.

Bullinger M. (1993) Indices versus profiles - advantages and disadvantages. In Walker S, and Rosser R (eds). Quality of Life Assessment: Key Issues in the 1990s. Lancaster: Kluwer Academic Publishers.

Bunston T and Breton M. (1992) Homes and homeless women. Journal of Environmental Psychology: 12; 149-162.

Burns L and Smith A. (1994) Homelessness in the 1990s: the end of bed and breakfast? London: Shelter.

Burrows L and Walentowicz P. (1992) Homes cost less than homelessness. London: Shelter.

Butler K, Carlisle B and Lloyd R. (1994) Homelessness in the 1990s: Local Authority Practice. London: Shelter.

Buxton M, Acheson R et al (1985). Costs and benefits of the heart transplant programme at Harefield and Papworth Hospitals. DHSS Research Report No 12. London: HMSO

Bybee D, Mowbray CT and Cohen E. (1995) Evaluation of a homeless mentally ill outreach program: differential short-term effects. Evaluation and Program Planning:18 (1); 13-24

Bybee D, Mowbray CT and Cohen E. (1994) Short versus longer term effectiveness of an outreach program for the homeless mentally ill. American Journal of Community Psychology: 22 (2); 181-209.

Calman K. (1984) Quality of life in cancer patients - an hypothesis. Journal of Medical Ethics, 10, 124-127.

Calsyn RJ, Allen G, Morse GA, Smith R, Tempelhoff. (1993) Can you trust self-report data provided by homeless mentally ill individuals? Evaluation Review: 17 (3); 353-366.

Calsyn RJ and Morse G. (1990) Homeless men and women: commonalities and a service gender gap. American Journal of Community Psychology: 8 (4); 597-608.

Calysn RJ, Morse GA, Klinkenberg WD and Trusty ML. (1997) Reliability and validity of self-report data of homeless mentally ill individuals. Evaluation and Program Planning: 20 (1); 47-54.

Campbell A. (1981) The sense of well-being in America. New York: McGraw-Hill.

Campbell D and Stanley J. (1963) Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Castle White M, Peterson Tulsky J, Dawson C, Zolopa A and Moss A. (1997) Association between time homeless and perceived health status among the homeless in San Franscisco. Journal of Community Health: 22 (4); 271-282.

Caton CLM, Wyatt RJ, Grunberg J and Felix A. (1990) An evaluation of a mental health program for homeless men. American Journal of Psychiatry: 147 (3); 286-289.

Cauce AM, Morgan VW, Moore E, Sy J, Wurzbacher K, Weeden K, Tomlin S and Blanchard T. (1994) Effectiveness of intensive case management for homeless adolescents: Results of a 3- month follow- up. Journal of emotional and behavioural disorders: 2 (4); 219-227.

Central Statistical Office. (1996) Social Trends: 25 London: HMSO.

Centre for Housing Policy. (1998) The Open House Programme for People Sleeping Rough: An Evaluation. Research Report. York: University of York.

Chalmers I (1989) Evaluating the effects of care during pregnancy and childbirth. In Chalmers I, Enkin M and Keirse M (eds) Effective care in pregnancy and childbirth. Oxford University Press: Oxford.

Chalmers I, Dickersin K and Chalmers TC. (1992) Getting to grips with Archie Cochrane's agenda. British Medical Journal: 305; 786-788.

Chassany O, Bergmann J and Caulin C. (1999) Authors are creating a database of quality of life questionnaires. British Medical Journal: 318; 1142.

Chen H and Rossi P. (1980) The multi-goal, theory-driven approach to evaluation: A model linking basic and applied social science. Social Forces: 59 (2); 107-122.

Child Accident Prevention Trust. (1991) Safe as Houses? Guidelines for the safety of children in temporary accommodation.

Christensen L. (1997) Experimental methodology. Allyn and Bacon: London.

Cochrane A. (1972) Effectiveness and efficiency: random reflections on health services. London: Nuffield Provincial Hospitals Trust.

Cochrane Effective Practice and Organisation of Care Group. (1999) Data Collection Checklist. Cochrane Effective Practice and Organisation of Care Group: Aberdeen.

Cohen J. (1977-8) Statistical power analysis for the behavioural sciences. New York: Academic Press.

Cohen EH, Mowbray CT, Bybee D, Yeich S, Ribisl K and Freddolino PP. (1993) Tracking and follow-up methods for research on homelessness. Evaluation Review; 17: 333-354.

Cohen IC, Ramirez M, Teresi J, Gallagher M and Sokolovsky J. (1997) Predictors of becoming redomiciled among older homeless women. The Gerontologist: 37 (1); 67-74.

Cohen EH, Mowbray CT, Bybee D, Yeich S, Ribisl K and Freddolino PP. (1993) Tracking and follow-up methods for research on homelessness. Evaluation Review: 17 (3); 331-352.

Cohen CI. (1994) Down and out in New York and London: A cross-national comparison of homelessness. Hospital and Community Psychiatry: 45 (8); 769-776.

Cohen CI and Thompson KS. (1992) Homeless mentally ill or mentally ill homeless. American Journal of Psychiatry: 49; 816-23.

Collings J. (1990) Psycho-social well-being and epilepsy: and empirical study. Epilepsia, 31:418-426.

Concover S, Berkman A, Ghetth A, Jahiel R, Stanley D, Geller PA, Valencia E and Susser E. (1997) Methods for the successful follow-up of elusive urban populations: An ethnographic approach with homeless men. Bulletin of New York Academic Medical Journal of Urban Health: 74 (1); 90-108.

Connelly J, Roderick P, Victor C. (1990) Health service planning for the homeless population: availability and quality of existing information. Public health: 104; 109-16.

Connelly J and Crown J (Eds). Homelessness and Ill Health. Royal College of Physicians: London.

Conrad KJ, Hultman CI, Pope AR, Lyons JS, Baxter WC, Daghestani AN, Lisiecki JP, Elbaum PL, McCarthery M, Manheim LM. (1998) Case managed residential care for homeless addicted veterans: results of a true experiment. Medical Care: 36 (1); 40-53.

Conway J. (1988) Prescription for poor health: The health crisis for homeless families. London: London Food Commission, Maternity Alliance, Shac and Shelter.

Cook TD and Campbell DT. (1979) Quasi-experimentation: Design and analysis for field settings. Boston: Houghton Mifflin Company

Coufopoulos AM and Stitt S. (1996) Homeless and Hungary Research Monograph.

Centre for Consumer Education and Research. Liverpool John Moores University.

Coulter A (1991). Evaluating the outcomes of health care. Sociology of the Health Service.

Cox IM, Campbell MJ and Dowson D. (1991) Red blood cell magnesium and chronic fatigue. Lancet: 337:757-760.

Crabbe T. (1997) 'They're too busy selling the Big Issue'. Health and the homeless in Manchester: An evaluation of the Mancunian Community NHS Trust's mobile health care clinic for homeless people. Manchester: Big Issue in the North.

Crisis (1999) The know-how 'health and homelessness conference. London (6th December).

Croft-White C. (1998) Evaluation of the homeless mentally ill initiative 1990-1997. London: Department of Health.

Cronbach L. (1951) Coefficient alpha and the internal structure of tests. Psychometrika, 16:297-334.

Culyer A. (1998) Taking advantage of the new environment for research and development. In Baker M and Kirk S (eds) Research and Development for the NHS: evidence, evaluation and effectiveness. (2nd edition) Radcliffe Medical Press: Oxford

Cunnane E, Wyman W, Rotermund A and Murray R. (1995) Innovative programming in community service centre. Community Mental Health Journal: 31 (2); 153-161.

Curtis S. (1985) Intra-urban variations in health care. The comparative need for health care survey of Tower Hamlets and Redbridge. Vol 1. Adult morbidity and survey use. London: Queen Mary College Department of Geography and Earth Sciences.

Da Costa N. (1996)The New Poverty: Homeless Families in America. Plenum Press: New York.

Davey Smith G, Bartley M and Blane D. (1990) The Black report on socioeconomic inequalities in health ten years on. British medical journal: 301; 373-77.

Davies P, Petrosino A and Chalmers I. (1999) Report and papers from the Exploratory meeting for the Campbell Collaboration: Developing an infrastructure for international collaboration to prepare, maintain and promote the accessibility of systematic reviews of social and educational interventions. Convened by The School of Public Policy, University College London.

Davies H and Crombie. (1995) Assessing the quality of care. British Medical Journal; 311:766.

Davies E. (1993) Inter-agency working with homeless people. Health Visitor: 66 (4);

130-132.

De Lame PA, Droussin AM, Thonson M, Ver Haest L and Wallace S. (1989)The effects of enalaprolon hypertension and quality of life. A large multi-centre study in Belgium. Act Cordigica: 102; 3-10.

Deal LW. (1994) The effectiveness of community health nursing interventions: A literature review. Public Health Nursing: 11(5): 315-323.

Department of the Environment. (1993) The Rough Sleepers Initiative: An Evaluation. London: HMSO.

Department of Environment (1990-96) Quarterly Homeless Statistics London: Department of Environment

Department of Environment (1996) Homeless statistics. *Annually*. London: Department of Environment. London: HMSO

Department of Environment, Transport and Regions (1998) 1998 Index of Local Deprivation. London: HMSO

Department of Health and Social Services. (1981) Primary health care in inner London. Report of a study group commissioned by the London health planning consortium (Chairman: Sir Donald Acheson). London: Department of Health.

Department of Health. (1990) Taking Research Seriously: means of improving and assessing the use and dissemination of research. London: HMSO

Department of Health. (1992) The Health of the Nation: a strategy for health in England. London: HMSO

Department of Health. (1998) Modernising Health and Social Services 1999 /00 - 2001/02. Partnership in Action. London: Department of Health.

Department of Health (1999) White Paper: Saving Lives, Our Healthier Nation. London: Department of Health.

Department of Health. (1999) Modern Standards and Service Models: Mental Health. National Service Frameworks. London: Department of Health.

Department of Health. (1999) Clinical governance: quality in the new NHS. London: Department of Health.

Deyo R and Inu T. (1984) Toward clinical applications of health status measures: sensitivity of scales to clinically important changes. Health Services Research, 19, 787-805.

Deyo R. (1984) Measuring functional outcomes in therapeutic trials for chronic disease.

Controlled Clinical Trials, 5,223-40.

Deyo A and Centor R. (1986) Assessing the responsiveness of functional scales to clinical changes: and analogy to diagnostic test performance. Journal of Chronic Disease, 39,897-906.

Deyo R, Diehr P and Patrick D. (1991) Reproducibility and responsiveness of health status measures: statistics and strategies for evaluation. Controlled Clinical Trials: 12; 142S-158S.

DiBlasio F and Belcher J. (1993) Social work outreach to homeless people and the need to address issues of self-esteem. Health and Social Work: 18 (4); 281-287.

Dickey B, Latimer E, Powers K, Gonzalez O and Goldfinger SM. (1997) Housing costs for adults who are mentally ill and formerly homeless. The Journal of Mental Health Administration: 24 (3); 291-305.

Dixon LB, Krauss N, Kernan E, Lehman AF, DeForge BR. (1995) Modifying the PACT model to service homeless persons with SMI. Psychiatric Services: 46; 684-688.

Doll H, Black N, Flood A, McPherson K. (1993) Criterion validation of the Nottingham Health Profile: patient views of surgery for benign prostatic hypertrophy. Social Science and Medicine: 37; 115-22.

Donabedian A. (1980) Explorations and quality assessment and monitoring. Vol 1: The definition of quality and approaches to its assessment. Ann Arbor. Michigan: Health Administration Press

Donovan JL, Frankel SJ and Eyles JD. (1993) Assessing the need for health status measures. Journal of Epidemiology and Community Health: 47; 158-162.

Dowell DA and Farmer G. (1992) Community response to homelessness: social change and constraint in local intervention. Journal of Community Psychology: 20 (1) ; 72-83.

Dowrick C, May C, Richardson M and Bundred P (1996) The bio-psycho-social model of general practice: rhetoric or reality? British Journal of General Practice: 46(403);105-7.

Drake RE, Yovetich NA, Bebout RR, HarrisM and McHugo GJ. (1997) Integrated treatment for dually diagnosed homeless adults. Journal of Nervous and Mental Disease: 185 (5); 298-305.

Drennan V and Stearn J (1986) Health visitors and homeless families. Health Visitor; 59 (11); 340-2

Dressler WW. (1994) Social status and the health of families: a model. Social Science and Medicine: 39 (12); 1605-1613.

Drever F and Whitehead M. (1997) Health inequalities: Decennial supplement. London: Office for National Statistics

Eagly A and Wood W. (1994) Using research synthesis to plan future research. In : Cooper H and Hedges L (Eds). The Handbook of Research Synthesis. New York: Russell Sage Foundation: 485-500.

Eddins E. (1993) Characteristics, health status and service needs of sheltered homeless families. ABNF Journal: 4 (2); 40-4

Edwards A, Barker J, Bloor M, Burnard P, Covey J, Hood K, Mathews E, Pill R, Russell I, Stott N and Wilkinson C. (1999) A systematic review of risk communication - improving effective clinical practice and research in primary care. North Thames: NHS Executive.

Effective Health Care. (1994) Implementing clinical practice guidelines: can guidelines be used to improve practice? Bulletin No. 8. Leeds: University of Leeds.

El-Kabir D (1996) On creating a culture of care for the homeless. Journal of Interprofessional Care: 10 (3);267-72

Elizabeth S. (1996) Health and homelessness in London. Kings Fund News: 19 (4); 7.

Felton CJ, Stanstny P, Shern DL, Blanch A, Donahue SA, Knight SA and Brown C. (1995) Consumers as peer specialists on intensive case management teams: impact on client outcomes. Psychiatric Services: 46 (10); 1037-44.

Fierman A, Drewyer B, Acker P and Legano L. (1993) Status of immunisation and iron nutrition in New York City homeless children. Clinical Pediatrics: 32 (3); 151-155.

Firth K. (1995) Opening the door to homeless households. Health visitor: 68 (3); 97.

Fisher K and Collins J. (1993) Homelessness, Health Care and Welfare Provision. London: Routeledge.

Fitzpatrick R, Ziebland S, Jenkinson C, Mowat A. (1992) The importance of sensitivity to change as a criterion for selection of health status measures. Quality in Health Care: 1; 89-93.

Flagg J, Pinner E and Mortensen L. (1989) Helping the homeless: An outreach program evaluation. Communicating Nursing Research; 39 (4) 22:228.

Flanagan JC. (1982) Measurement of quality of life: current state of the art. Arch Phys Med Rehabil: 63; 56-59.

Flynn L. (1997) The health practices of homeless women: a causal model. Nursing Research: 46 (2); 72-77.

Fowler,G.H.. (1995) Primary Care. In (eds) Weatherall D, Ledingham J and Warrell D Oxford Textbook of Medicine, 3rd edition, OUP

Gaulton-Berks L. (1998) Equity in health; lightening the primary care load. Primary Health Care: 8; 26-29.

Geddes J, Richard Newton J, Bailey S, Freeman C and Young G. (1996) Prevalence of psychiatric disorder, cognitive impairment and functional disability among homeless people resident in hostels. Health Bulletin: 54 (3);276-279.

Geddes J, Freemantle N, Streiner D and Reynolds S. (1998) Understanding and interpreting systematic reviews and meta-analsysis. Part 1: rationale, search strategy, and describing results. Evidence Based Mental Health: 1 (3); 68-69.

George S, Shanks N and Westlake (1991) Census of single homeless people in Sheffield. British Medical Journal: 302; 1387-9.

Gibb E and Lucas B. (1993) Portakabin care. Nursing Standard: 19 (7); 18-19.

Gill B, Meltzer H, Hinds K and Petticrew M. (1996) OPCS surveys of psychiatric morbidity in Great Britain: Psychiatric morbidity among homeless people. London: HMSO.

Glover G. (1995) Mental health informatics and the rhythm of community care. British Medical Journal:311:1038-1039

Glover G. (1996) Mental Illness Needs Index (MINI). In Thornicroft G and Strathdee (Eds). Commissioning Mental Health Services. London: HMSO

Goldberg D and Huxley P. (1992) Common mental disorders: a bio-social model. London: Tavistock.

Goldstein M, Siegel J and Boyer R. (1984) Predicting changes in perceived health status. American Journal of Public Health :74 (6); 611-15.

Goss S (1996) Bringing housing into community care. Journal of interprofessional care: 10 (3); 231-39.

Gray JM. (1997) Evidence-based healthcare. Churchill Livingstone

Greenfield S and Nelson EC. (1992) Recent developments and future issues in the use of health status assessment measures in clinical settings. Medical Care: 30 (5)supplement; 23-41.

Greenhalgh T and Taylor R. (1997) How to read a paper: Papers that go beyond numbers (qualitative research). British Medical Journal: 315 (7110);740-743.

Greve J. (1991) Homelessness in Britain. York: Joseph Rowntree Foundation.

Guyatt G. (1995) A taxonomy of health status instruments. The Journal of Rheumatology: 22 (6); 1188-90.

Guyatt G. (1997) Measuring health-related quality of life: General issues. Canadian Respiratory Journal: 4 (3); 123-130.

Guyatt G, Bombardier C, and Tugwell P. (1986) Measuring disease specific quality of life in clinical trials. Canadian Medical Association Journal, 134,889-95.

Guyatt G, Feeny D, Patrick D. (1993) Measuring health-related quality of life. Annual International Journal of Medicine: 118; 622-629.

Guyatt G, Juniper E, Walter S, Griffith L and Goldstein R. (1998) Interpreting treatment effects in randomised trials. British Medical Journal: 316 (7132); 690-693.

Guyatt G, Walters S, and Norman G. (1987). Measuring change over time: assessing the usefulness of evaluative instruments. Journal of Chronic Disease, 40,171-8.

Hagen JL and Hutchison E. (1988) Who's serving the homeless? Social Casework: The Journal of Contemporary Social Work: 69 (8); 491-497.

Hague D. (1992) Project connect for homeless alcohol and drug abusers. In: National Institute on Alcohol Abuse and Alcoholism. Community demonstration projects for alcohol and drug abuse treatment of homeless individuals. Vol II: Case studies of nine community demonstration grants. Rockville, MD: ROW Sciences Inc.

Haigh J, Elliott P (1994) The Hanover project. (Health services by multidisciplinary general practice team for homeless people in Sheffield). Health Visitor: 67(8); 274-5.

Hart T. (1971) The inverse care law. Lancet:1;405-12

Haskey J. (1996) Population review:6. Families and households in Great Britain. Population Trends 1996; 85:7-24.

Hatton, D. (1997) Managing health problems among homeless women with children in a transitional shelter. Image: Journal of Nursing Scholarship: 29 (1); 33-37.

Hatton DC. (1997) Managing health problems among homeless women with children in a transitional shelter. Journal of Nursing Scholarship: 29 (1); 33-37.

Hayden C. (1992) Bed and breakfast blues. Health service journal: 8 October: 22-24.

Hayden C and Bose R. (1991) Picking up the pieces? Homeless Families: strategies for service provision. Social Services Research and Information Unit: HMSO.

Hays RD and Hadorn D. (1992) Responsiveness to change: an aspect of validity, not a separate dimension. Quality of Life Research: 1; 73-75.

Health Visitors' Association and the General Medical Services Committee (1988). The Effects of Homelessness Upon Families in Bed & Breakfast Accommodation. Homeless Families and their Health. London: British Medical Association.

Health Education Authority. (1999) Promoting the health of homeless people: setting a research agenda. London: HEA.

Hegarty S. (1995) Creating healthier prospects for the homeless. Healthlines: 25; 14-16.

Helvie C and Alexy B. (1992) Using after-shelter case management to improve outcomes for families with children. Public Health Reports: 107 (5); 585-588.

Herinckx HA, Kinney RF, Clarke GN and Paulson R. (1997) Assertive community treatment versus usual care in engaging and retaining clients with severe mental illness. Psychiatric Services: 48 (10); 1297-1306.

Heubner J and Tryssenaar J. (1996) Development of an occupational therapy practice perspective in a homeless shelter: A fieldwork experience. Canadian Journal of Occupational Therapy: 63 (1); 24-32.

Hinton T. (1997) Urban myths. Health Service Journal: 18 September; 36-37.

Hinton T. (1994) Battling through the Barriers: a study of single homelessness in Newham and Access to Health Care. London: Health Action for Homeless People and East London and the City FHSA.

Hogan P. (1995) Temporary address, permanent care. Nursing Standard; 9;33:20-22.

Holloway F, Oliver N, Collins E and Carson J. (1995) Case management: a critical review of the outcome literature. European Psychiatry: 10 (3); 113-128

Hopton J, Porter A and Howie (1991) A measure of perceived health in evaluating general practice: the Nottingham Health Profile. Family Practice: 8 (3); 253-260.

Hough R, Tarke H, Renker V, Shields P and Glatstein J. (1996) Recruitment and retention of homeless mentally ill participants in research. Journal of Consulting and Clinical Psychology: 64 (50); 881-891.

Huebner RB and Crosse SB. (1991) Challenges in evaluating a national demonstration program for homeless persons with alcohol and other drug problems. New directions for program evaluation: 52 (winter); 33-46.

Hunt S and McKenna S. (1991) The Nottingham Health Profile User's Manual, revised edition. Manchester: Galen Research and Consultancy.

Hunt S, McEwan P, and McKenna S. (1986) Measuring health status. London: Croom Helm.

Hunt S (1998). Subjective health indicators and health promotion. Health promotion: 3(1); 23-34.

Hunt S, McKenna M, McEwen, Williams J, Evelyn J and Evelyn P. (1981) The Nottingham Health Profile: subjective health status and medical consultations. Social science and medicine: 15A: 221-229.

Hunter JK, Crosby FE, Ventura MR and Warkentin L. (1991) A national survey to identify evaluation criteria for programs of health care for homeless. Nursing and Health Care: 12 (10); 536-542.

Hunter J, Crosby F, Ventura M and Warkentin. (1997) Factors limiting evaluation of health care programs for the homeless. Nursing Outlook: 45; 224-8.

Hurlburt MS, Wood PA and Hough RL. (1996) Providing Independent Housing for the homeless mentally ill: a novel approach to evaluating long-tem longitudinal housing patterns. Journal of Community Psychology: 24 (3); 291-310.

Hutchinson K and Gutteridge B. (1995) Health visiting homeless families: the role of the specialist health visitor. Health-Visitor Sep; 68(9): 372-4

Huxley (1998). Social services departments, secondary health care and community care. In Challis D, Darton R and Steward K (Eds). Community care, secondary health care and care management. Kent: Ashgate.

Jacoby A, Baker G, Smith D, Dewey M and Chadwick D. (1993) Measuring the impact of epilepsy: the development of a novel scale. Epilepsy Research: 16; 83-88.

Jadad A, Moore RA, Carroll D, Jenkinson C, Reynolds D, Gavaghan D, McQuay H. (1996) Assessing the quality of reports of randomised clinical trials: is blinding necessary? Controlled Clinical Trials: 17; 1-12.

Jenkins, C.(1992) Assessment of outcomes of health intervention. In Social Science Medicine Vol.35,No.4. pp367-375.

Jenkinson C. (1991) Why are we weighting? A critical examination of the use of item weights in a health status measure. Social Science and Medicine 32: 1413-16.

Jenkinson C (Ed). (1994) Measuring health and medical outcomes. London: University College London Press.

Jenkinson C (1995) Evaluating the outcomes of medical treatment: possibilities and limitations. Social Science and Medicine: 41 (10); 1395-1401.

Jenkinson C, Lawrence K, McWhinnie D and Gordon J. (1995) Sensitivity to change of health status measures in a randomised controlled trial: comparison of the COOP charts and the SF-36. Quality of Life Research: 4; 47-52.

Jezewsk MA. (1995) Staying connected: the core of facilitating health care for homeless persons. Public Health Nursing: 12 (3): 203-210. (Ordered 20 July 1998)

Johnson AK and Cnaan RA (1995) Social work practice with homeless persons: state of the art. Research on Social Work Practice: 5 (3); 340-382.

Jones K, Colson P, Valencia E and Susser E. (1994) A preliminary cost effectiveness analysis of an intervention to reduce homelessness among the mentally ill. Psychiatric Quarterly: 64 (4); 243-256.

Kaufman NK. (1984) Homelessness: a comprehensive policy approach. Urban and Social Change Review: Winter; 21-26.

Kazis L, Anderson J and Meenan R. (1989) Effect sizes for interpreting changes in health status. Medical Care, 27(3) (Supplement):S178-S189.

Kind P and Carr-Hill R. (1987) The Nottingham Health Profile: A useful tool for epidemiologists? Social Science and Medicine: 25; 905-10

Kirby MW and Braucht GN. (1993) Intensive case management for homeless people with alcohol and other drug problems: Denver. Alcoholism Treatment Quarterly: 10(3-4); 187-200.

Kirshner B, and Guyatt G. (1985) A methodological framework for assessing health indices. Journal of Chronic Disease, 38,27-36.

Krupinski J.(1980) Health and quality of life. Social Science and Medicine 14A:203-211.

Leach J and Wing J. (1978) The effectiveness of a service for helping destitute men. British Journal of Psychiatry: 133; 481-92.

Leda C and Rosenheck R. (1992) Mental health status and community adjustment after treatment in a residential treatment program for homeless veterans. American Journal of Psychiatry: 149: 1219-1224.

Lee H and Goodburn A. (1993) Developing an integrated strategy to meet homeless families health needs. Health Visitor: 66 (2); 51-3.

Lehman AF, Dixon LB, Kernan F, DeForge BR, Postrado LT. (1997) A randomised trial of assertive community treatment for homeless persons with severe mental illness. Archives of General Psychiatry: 54 (11); 1038-1043.

Lehman AF. (1988) A quality of life interview for the chronically mentally ill. Evaluation and Program Planning: 11; 51-62.

Lewis, J. (1996) Primary health care for homeless people in A&E. Professional Nurse; 12; 1: 13-18.

Limb M. (1998) Creaking joints. Health Service Journal: 5th November.

Lindsey AM. (1992) Nursing research serving the underserved homeless health care. Communicating nursing research: 25; 55-72.

Lindsey EW. (1996) Mothers' perceptions of factors influencing the restabilization of homeless families. Families in Society: The Journal of Contemporary Human Services.

Link B et al. (1995) Life time and five year prevalence of homelessness in the United States: New evidence on an old debate. American Journal of Orthopsychiatry: 65 (3); 347-354.

Linnane E. (1997) Homelessness and health care: out of practice. British Journal of Health Care Management: 3 (4);186-188.

Lipton FR, Nutt S and Sabatini A. (1988) Housing the homeless mentally ill: a longitudinal study of a treatment approach. Hospital and Community Psychiatry: 39 (1); 40 -45.

Lissauer T, Richman S, Tempia M et al. (1993) Influences of homelessness on acute admissions to hospital. Archives of Diseases of Children: 69 (4); 423-429.

Liverpool City Council Housing and Consumer Services Directorate. (1996) Homeless statistics. Unpublished data.

London Boroughs Grants. (1998) Agenda for Action: Review of Single Homelessness Policy and Provision in London. London Boroughs Grants: London.

Longabaugh R, Mattson ME, Connors GJ and Cooney NL. (1994) Quality of life as an outcome variable in alcoholism treatment research. Journal of studies on alcohol: Supplement 12; 119-129.

Lovell B. (1986) Health visiting homeless families. Health Visitor 59 (11); 334-337

Lowe D, O' Grady J, McEwen J and Williams R.(1990) Quality of life following liver transplantation: a preliminary report. Journal of Royal College of Physicians London.: 24; 43-46.

Lowry S. (1991) Housing and health. London: British Medical Journal

Lydick E and Epstein RS. (1993) Interpretation of quality of life changes. Quality of Life Research: 2; 221-226.

Mant J, Dawes M and Graham-Jones S (1996) External validity of trials is more important than generalisability. British Medical Journal: 312; 779.

Mant D (1993) Understanding the problems of health and housing research. In (eds) Burridge R and Ormandy D Unhealthy Housing: Research, remedies and reform.

London: E&FN Spon.

Mant J and Hicks N. (1995) Detecting differences in quality of care: the sensitivity of measures of process and outcome in treating acute myocardial infarction. British Medical Journal; 311:793-6

Marcus SH, Grover PL, Revicki DA. (1987) The method of information synthesis and its use in the assessment of health care technology. International Journal of Technology Assessment in Health Care: 3; 497-508.

Marriott S, Harvey R and Bonner D. (1997) Health in hostels: a survey of hostel dwelling women. Psychiatric Bulletin: 21; 618-621.

Marshall EJ and Reed JL. (1992) Psychiatric morbidity in homeless women. British Journal of Psychiatry: 160; 761-768.

Marshall GN, Burnham MA, Koegel P, Sullivan G and Benjamin B. (1996) Objective life circumstances and life satisfaction: results from the Course of Homelessness Study. Journal of Health and Social Behaviour; 37 (march); 44-58.

Marshall M, Lockwood A and Gath D. (1995) Social services case-management for long-term mental disorders: a randomised control trial. Lancet: 345; 409-12.

Marshall M (1996). Evaluating services for homeless people with mental disorders: theoretical and practical issues. In Dinesh Bhugra (ed.), Homelessness and Mental Health. London: Cambridge University Press.

Marshall M, Gray A, Lockwood A, Green R. (1998) Assertive Community Treatment for people with severe mental disorders. (Cochrane Library: Oxford Update Software, Oxford)

Marshall M, Gray A, Lockwood A, Green R. (1997) Case management for people with severe mental disorders. (Cochrane Library: Oxford Update Software, Oxford)

Maslach C. (1982) Burnout: The cost of caring. Prentice Hall: Englewood Cliffs.

Maslow A(1962) Toward a psychology of being. New York: Van Nostrand.

May KM and Evans GG. (1994) Health education for homeless populations. Journal of community health nursing: 11(4); 229-237.

McAuley A and McKenna H. (1995) Mental disorder among a homeless population in Belfast: an exploratory survey. Journal of Psychiatric and Mental Health Nursing: 2; 335-342.

McCallum, A Critical Public Health 1993 Vol.4:4.

McEwen J. (1993) The Nottingham Health Profile. In Walker S, and Rosser R (eds).

Quality of Life Assessment: Key Issues in the 1990s. Lancaster: Kluwer Academic Publishers.

McKee M, Britton A, Black N, McPherson K, Sanderson C and Bain C. (1999) Interpreting the evidence: choosing between randomised and non-randomised studies. British Medical Journal: 319; 312-5.

McKenna SP and Payne RL. (1989) Comparison of the General Health Questionnaire and the Nottingham Health Profile in a study of unemployed and re-employed men. Family Practice : 6 (1); 3-8.

Mercier C and Racine G. (1995) Case management with homeless women: a descriptive study. Community mental health journal : 31 (1); 25-37.

Mercier C, Fournier L and Peladeau N. (1992) Program evaluation of services for the homeless: challenges and strategies. Evaluation and Program Planning: 15; 417-426.

Mercier C and Racine G. (1993) A follow-up study of homeless women. Journal of social distress and the homeless: 2 (3); 207-222.

Milburn NG and Watts RJ. (1986) Methodological issues in research on the homeless and homeless mentally ill. International Journal of Mental Health; 14; 4: 42-60.

Milne D. (1993) Psychology and Mental Health Nursing. London: British Psychological Society Books.

Moher D, Pham Ba', Jones A, Cook DJ, Jadad AR, Moher M, Tugwell P and Klassen T. (1998) Does quality of reports of randomised trials affect estimates of intervention efficacy reported in meta-analyses? Lancet: 352; 609-13.

Moore C. (1990) Homelessness: the hidden cost. Health Visitor: 63 (6); 196-7.

Morrow R, Halbach J, Hopkins C, Wang C, Shortridge L. (1992) A family practice model of health care for homeless people: Collaboration with family nurse practitioners. Family Medicine: 24; 312-6.

Morse GA, Calsyn RJ, Allen G, Tempelhoff B and Smith R. (1992) Experimental comparison of the effects of three treatment programs for homeless mentally ill people. Hospital and Community Psychiatry: 43 (10); 1005-1010.

Morse GA, Calsyn RJ, Klinkenberg WD, Trusty ML, Gerber F, Smith R, Tempelhoff B and Ahmad L. (1997). An experimental comparison of three types of case management for homeless mentally ill persons. Psychiatric Services: 48 (4); 497-503.

Morton S. (1990) Health and homelessness. Health Visitor: 63 (6); 191-3

Mowbray CT, Cohen E and Bybee D. (1993) The challenge of outcome evaluation in homeless services: engagement as an intermediate outcome measure. Evaluation and

Program Planning: 16; 337-346.

Mowbray CT, Cohen E and Bybee D. (1991) Services to individuals who are homeless and mentally ill: implementation and evaluation. In Debra Rog (ed.), Evaluating Programs for the homeless. New Directions for program evaluation. No 52 ; 75-90. San Francisco: Jossey-Bass.

Muldoon M, Barger S, Flory J and Manuck S. (1998) What are quality of life measurements measuring? British Medical Journal: 316; 542-545.

Muller DS and Lin E (1988) Children in sheltered homeless families: reported health status and use of health services. Pediatrics 81 (5); 668-73.

Murray R and Baier M. (1995) Evaluation of a transitional residential programme for homeless chronically mentally ill people. Journal of Psychiatric and Mental Health Nursing: 2; 3-8.

National Health Service Centre for Reviews and Dissemination. (1996) Undertaking systematic reviews of research on effectiveness: CRD guidelines for those carrying out or commissioning reviews: Report no. 4.University of York

National Health Service Centre for Reviews and Dissemination (1997) Mental health promotion in high risk groups. Effective Health Care: 3 (3). University of York

NHS Executive London Regional Office. (December 1999) The London Health Strategy: Draft Outline Strategic Framework. NHS Executive London Regional Office: London

Neal J. (1997) Homelessness and theory reconsidered. Housing Studies: 12 (1); 47-61

North C, Moore H and Owens C. (1997) Go home and rest: The use of an accident and emergency department by homeless people. London: Shelter.

Nyamathi A, Bennett C, Leake B and Chen S. (1995) Social support among impoverished women. Nursing Research: 44; 376-378.

Nyamathi A, Flaskerud J, Bennett C and Lewis C. (1994) Evaluation of two aids education programs for impoverished Latina women. AIDS Education and Prevention: 6 (4); 296-309.

Nyamthi A, Flaskerud J and Leake B. (1997) HIV-Risk behaviours and mental health characteristics among homeless or drug-recovering women and their closest sources of social support. Nursing Research: 46 (3) 133-137.

Oakley A. (1999). An infrastructure for assessing social and educational interventions: the same or different?. In Davies P, Petrosino A and Chalmers I. Report and papers from the Exploratory meeting for the Campbell Collaboration: Developing an infastructure for international collaboration to prepare, maintain and promote the accessibility of systematic reviews of social and educational interventions. Convened by The School of Public Policy, University College London.

Office for National Statistics. (1996) Living in Britian: Results from the 1996 General Household Survey. HMSO: London.

Office of Population Censuses and Surveys. (1994) Morbidity statistics from general practice: 4th national study. HMSO/ RCGP: London.

Office of Population Censuses and Surveys. (1992) 1991 Census: Great Britain. HMSO: London.

Office of Population Censuses and Surveys. (1993) Communal establishments: Census 1991. HMSO: London.

Ong BN. (1993) The practice of health services research. Chapman and Hall: London.

Orwin RG, Goldman HH, Sonnefeld LJ, Ridgely MS, Smith NG, Garrison-Mogren R, O'Neill E and Sherman A. (1994) Alcohol and drug abuse treatment of homeless persons: results from the NIAAA community demonstration program. Journal of Health Care for the Poor and Undeserved: 5 (4) 326-352.

Osborne R, Karlin J, Baumann D, Osborne M and Nelms. (1993) A social comparison perspective of treatment seeking by the homeless. Journal of Social Distress and the Homeless: 2 (2); 135-123.

Overhage J, Tierney W and MdDonald. (1995) Design and implementation of the Indianapolis network for patient care and research. Bulletin Medical Library Association: 83(1);48-56.

O'Boyle C, McGee H, Hickey A, Joyce C and O'Malley. (1993) The schedule for the evaluation of individual quality of life (SEIQOL): Administration manual. Dublin: Department of Psychology, Medical School, Royal College of Surgeons in Ireland.

Parsons L. (1987) Flexible care strategies. Health Service Journal: 97 (5038); 214-215.

Patel K. (1985) Pulmonary tuberculosis in residents of lodging houses, night shelters and common hostels in Glasgow: a five year prospective survey. British Journal of Diseases of the Chest: 79; 60-66

Patrick DL (1986) Measurement of health and quality of life, in DL Patrick and G Scamber (eds) Sociology as Applied to Medicine. Eastbourne: Bailliere Tindall.

Patrick D and Erickson P. (1993) Assessing health-related quality of life for clinical decision-making. In Walker and Rosser (eds) Quality of life assessment: Key issues in the 1990s. Lancaster: Kluwer Academic Publishers.

Pearson N, O Brien J, Thomas H, Ewings P, Gallier L and Bussey A. (1996) Collecting morbidity data in general practice: the Somerset morbidity project. British medical Journal:312;1517-1520

Pickin CA and Ramsell P. (1990) Homeless in bed and breakfast: a survey of the health needs of single homeless people in Manchester. Occasional paper: Health and Homeless Team, Manchester.

Pleace N and Quilgars D. (1997) Health, homelessness and access to health care services in London. In Burrows R, Pleace N and Quilgars D (eds) Homelessness and social policy. Routledge: London.

Pleace N and Quilgars D. (1996) Health and homelessness in London. Kings Fund: London.

Powell P. (1988) Qualitative assessment in the evaluation of the Edinburgh primary health care scheme for single homeless hostel dwellers. Community Medicine: 10 (3); 185-96.

Power R, French R, Connelly J, George S, Hawes D, Hinton T, Klee H, Robinson D, Senior J, Timms P and Warner D. (1999) Health, health promotion and homelessness. British Medical Journal: 318; 590-592.

Prabucki K, Wootton E, McCormic R and Washam T. (1995) Evaluation the effectiveness of a residential rehabilitation program for homeless veterans. Psychiatric Services: 46 (4); 372-375.

Princes Park Health Centre. (1992) Annual report. Unpublished.

Rapheal D, Brown I, Renwick R, Cava M, Weir N and Heathcote K. (1997) Measuring the quality of life of older persons: a model with implications for community and public health nursing. International Journal of Nusing Studies: 34 (3); 231-9.

Read LJ (1993) The new era of quality of life assessment. In Walker S, and Rosser R (eds). Quality of Life Assessment: Key Issues in the 1990s. Lancaster: Kluwer Academic Publishers.

Redelmeier DA, Molin JP and Tibshirani RJ. (1995) A randomised trial of compassionate care for the homeless in an emergency department. The Lancet: 345; 1131-34.

Research Unit in Health and Behavioural Change, University of Edinburgh. (1989) The social construction of health and illness. In Changing the Public Health. Chichester: John Wiley and Sons

Rife JC, First RJ, Greenlee RW, Miller LD and Feichter MA. (1991) Case management with homeless mentally ill people. Health and Social Work: 16 (1); 58-67.

Riley-Eddins E. (1995) Health status of sheltered homeless families: an ethnic-cultural assessment. The Journal of Multicultural Nursing and Health: 1 (4); 16-22.

Roberts I and Pless B. (1995) Social policy as a cause of childhood accidents: the children of lone mothers. British Medical Journal 311: 925-8.

Roberts C and Sibbald B. (1998) Understanding controlled trials: Randomising groups of patients. British Medical Journal: 316; 1898-1900.

Robinson N. (1998) Homelessness and poor health: the links. London: Action for Homeless People. (http://web.ukonline.co.uk/members/n.robinson/hahp/poorheal.htm)

Robinson D. (1995) The health of homeless people: a housing issue. Unpublished PhD thesis: University of Edinburgh

Roderick P, Victor C and Connelly J. (1991) Is housing a public health issue? A survey of directors of public health. British Medical Journal 302 (6769): 157-60

Rog DJ and Heubner R. (1992) Using research and theory in developing innovative programs for homeless individuals. In H T Chen and P Rossi (Eds) Theory-Driven Evaluation: Analysing and Developing Programs and Policies. Conneticut: Greenwood.

Rog D, Holupka D, McCombs-Thornton K, Brito M and Hambrick R. (1997) Case management in Practice: Lessons from the evaluation of the RWJ/ HUD homeless families program. Journal of Prevention and Intervention in the Community: 15 (2); 67-82

Rog DJ. (1992) The role of investigation in program and policy development. New Directions for Program Evaluation: 56 (Winter); 53-62.

Rog DJ, Holupka S and McCombs-Thornton KL. (1995a) Implementation of the homeless families program: 1. Service models and preliminary outcomes. American Journal of Orthopsychiatry: 65 (4); 502-13.

Rog DJ, McCombs-Thornton KL, Gilbert-Mongelli AM, Brito MC and Holopka S (1995b) Implementation of the homeless families program: 2. Characteristics, strengths, and needs of participant families. American Journal of Orthopsychiatry: 65 (4); 514-27.

Rog DJ. (1991) The evaluation of the homeless families program: Challenges in implementing a nine-city evaluation. New Directions for program evaluation: 52 (Winter); 47-60.

Roland M and Torgerson D. (1998) What outcomes should be measured? British Medical Journal: 317; 1075-1080.

Ropers RH and Boyer R. (1987) Perceived health status among the new urban homeless. Social Science and Medicine: 24 (8); 669-678.

Rosenheck R, Frisman L and Gallup P. (1995) Effectiveness and cost of specific treatment elements in a program for homeless mentally ill veterans. Psychiatric Services: 46 (11); 1131-1139.

Rosenthal R. (1966) Interpersonal expectations: Effects of the experimenter's hypothesis. In R. Rothenthal and R Rosnow (Eds), Artifact in behaviour research. New York: Academic Press.

Rossi P and Freeman H. (1989) Evaluation: A systematic Approach. California: Sage.

Rossi P and Wright J. (1984) Evaluation research: An assessment. Annual Review of Sociology: 10; 331-52.

Royal Colleges of Physicians. (1991) Housing or homelessness: a public health perspective. London: Royal Colleges of Physicians

Ruta D and Garratt A. (1992) A new approach to the measurement of quality of life: the patient generated index. Paper presented to the Seventh Inter Study Outcome Management System conference: context and experience. Minneapolis/St.Paul Airport Hilton.

Ruta, D and Garratt A. (1994) Health status to quality of life measurement In Jenkinson C (Ed) Measuring health and medical outcomes. Oxford: University College London.

Ruta D, Garratt A Russell I and MacDonald L. (1994) A new approach to the measurement of quality of life: the patient generated index. Medical Care: 32 (11); 1109-26.

Sackett et al (1997) Evidence-based medicine: how to practice and teach EBM. Edinburgh : Churchill Livingstone

Sackett DL, Haynes RB, Guyatt GH et al. (1991) Clinical Epidemiology: A Basic Science for Clinical Medicine. Toronto: Little Brown.

Sanders C, Egger M, Donovan J, Tallon D and Frankel S. (1998) Reporting on quality of life in randomised controlled trials: bibliographic study. British Medical Journal: 317; 1191-1194.

Savarese M, Detrano T, Koproski J and Weber M. (1990) Case management. (284-302) In Brickner et al (Eds) Under the safety net: The health and social welfare of the homeless in the United States. Norton: New York.

Scott J. (1993) Review article: Homelessness and mental illness. British Journal of Psychiatry: 162; 314-25.

Seale C. (1993) The evaluation of health care. In Davey B and Poppay J. Dilemas in health care.

Sheffield Health. (1995) The Hanover Project Report: primary care in the inner city for

Sheffield's homless people. Sheffield Health. (Unpublished)

Sheldon TA, Freemantle N, House A, Adams CE, Mason JM, Song F, Long A and Watson P. (1993) Examining the effectiveness of treatments for depression in general practice. Journal of Mental Health: 2; 141-156.

Shelter (1999b) http:/www.shelter.org.uk/changing/facts/homelessness.html

Shelter (1999c) http:/www.shelter.org.uk/difference/campaigner.html

Shelter (1999a) Warning over rise in Use of B&Bs. Press release. London: Shelter.

Shelter (1998) http:/www.shelter.org.uk/issues/temp.html

Shinn M, Knickman JR, Ward D, Petrovic NL and Muth JB. (1990) Alternative models for sheltering homeless families. Journal of Social Issues: 46 (4); 175-190.

Shlay AB. (1994) Running on empty: Monitoring the lives and circumstances of formerly homeless families with children. Journal of social distress and the homeless: 3 (2); 135-162.

Shlay AB and Rossi P. (1992) Social science research and contemporary studies of homelessness. Annual-Review-of-Sociology. Vol 18: 129-160.

Shlay AB and Holupka CS. (1992) Steps towards independence: Evaluating an integrated service program for public housing residents. Evaluation Review: 16 (5); 508-533.

Sidani S and Braden C. (1998) Evaluating Nursing Interventions: A theory-driven approach. London: Sage.

Single Homelessness Review Group. (1998) Agenda for Action: Review of Single Homelessness Policy and Provision in London. London: London Borough Grants.

Slavin RE. (1995) Best-evidence synthesis: an intelligent alternative to meta-analysis. Journal of Clinical Epidemiology: 48 (1); 9-18.

Smith CA, Smith CJ, Kearns R, and Abbot M. (1993) Housing Stressors, Social Support and Psychological Distress. In Social Science and Medicine Vol.37.No.5. pp 603-612.

Smith SJ (1989) Housing and health: a reveiw and research agenda. Discussion Paper, No 27. Centre for Housing Research, Glasgow

Smith LG. (1988) Home treatment of mild, acute diarrhea and secondary dehydration of infants and small children: an educational program for parents in a shelter for the homeless. Journal of professional nursing: 4; 60-63.

Smith G and Cantley C (1985) Assessing Health Care: a study in organisational evaluation. Milton Keynes: Open University Press.

Smith M and Glass G (1977) Meta-analysis of psychotherapy outcome studies. American Psychologist: 32(9): 752-760.

Smith R. (1991) Where is the wisdom. British Medical Journal 303: 798-799.

Smith R. (1999) Medicine and the marginalised: they deserve the best, not the poorest, care. British Medical Journal: 319; 1589-90.

Snape K. (1996) The cost of housing. The Institute of Health Service Management: 3 (2); 3.

Snowdon C, Garcia J and Elbourne D. (1997) Making sense of randomization; responses of parents of critically ill babies to random allocation of treatment in a clinical trial. Social Science and Medicine: 45 (9); 1337-1355.

Solarz AL. (1986) Follow-up study in a temporary shelter for the homeless: A look at quality of life and social supports. Unpublished doctoral dissertation, Michigan State University.

Sonquist J, and Dunkelberg W. (1977) Survey and Opinion Research: Procedure for Processing and Analysis. New Jersey: Prentice Hall.

SPSS for Windows, Rel. 7.0.0. (1995) Chicago: SPSS Inc.

Steiner R, Looney S, Hall L and Wright K. (1995) Quality of life and functional status among homeless men attending a day shelter in Louisville, Kentucky. Journal of Kentucky Medical Association: 93 (5); 188-95.

St Leger A, Schnieden H and Walsworth-Bell J. (1992) Evaluating health services' effectiveness: A guide for health professionals, service managers and policy makers. Open University Press: Milton Keynes.

St Leger A and Walsworth-Bell J. (1999) Change-promoting research for health services: a guide for resource managers, research and development commissioners and researchers. Buckingham: Open University.

Standing Conference on Public Health. (1994) Housing, homelessness and health. Nuffield Provisional Hospital Trust.

Stein L and Test M. (1985) The training in community living model: a decade of experience. New directions for mental health services (no. 26) San Fransisco: Jossey-Bass.

Stephenson J and Imrie J. (1998) Why do we need randomised controlled trials to assess behavioural interventions? British Medical Journal: 316(7131); 611-613.

Stern R and Stilwell B. (1991) Problems of access and attitude: health care and single homeless people. In Smith S (Ed) Housing for Health. London: Longman.

Stern R. (1990) Working for (some) patients. Roof: Jan /Feb; 18-19

Stewart LA and Parmar MK. (1996) Bias in the analysis and reporting of randomised controlled trials. International Journal of Technology Assessments in Health Care: 12 (2); 264-275.

Stoter DJ (1997) Staff support in health care. In (Eds) Johnson J and Johnson G. The psychosocial work environment: work organisation, democratization and health. Oxford: Blackwell Science Ltd.

Stovall J and Flaherty J. (1994) Homeless women, disaffiliation and social agencies. International Journal of Social Psychiatry: 40 (2); 135-140

Streiner D and Norman G. (1989) Health Measurement Scales: A Practical Guide to their Development and Use. Oxford: Oxford University Press.

Stretch J and Kreuger L. (1992) Five year cohort study of homeless families: A joint policy research venture. Journal-of-Sociology-and-Social-Welfare. Vol 19(4): 73-88.

Stronks K, Van De Mheen H, Looman C and Mackenbach J. (1997) The importance of psychosocial stressors for socio-economic inequalities in perceived health. Social Science and Medicine:46 (4-5); 611-623.

Susser E, Goldfinger S and White A (1990) Some clinical approaches to the homeless mentally ill. Community Mental Health Journal: 26 (5); 463-80

Susser E, Valencia E, Sohler N, Gheith A, Concover S and Torres J. (1996) Interventions for homeless men and women with mental illness: reducing sexual risk behaviours for HIV. International Journal of STD & AIDS: 7 (Suppl.2); 66-70.

Susser E, Valencia E, Concover S, Felix A, Tsai WY and Wyatt RJ. (1997) Preventing recurrent homelessness among mentally ill men: a "critical time" intervention after discharge from a shelter. American Journal of Public Health: 87 (2); 256-262.

Taylor C. (1993) On the conduct of homelessness research: lessons from a qualitative study of women diagnosed with chronic mental illness. Issues in Mental Health Nursing: 14; 425-432.

Thomas A and Niner P. (1989) Living in temporary accommodation: A survey of homeless people. Department of the Environment. London: HMSO.

Thornley B and Adams C. (1998) Content and quality of 2000 controlled trials in schizophrenia over 50 years. British Medical Journal: 317;1181-4.

Timms PW. (1989) Homelessness and mental illness. Health Trends: 213; 70-71.

Tobin C. (1997) Homeless statistics 1995-6 actuals. London: The chartered institute of public finance and accountancy.

Tollett JH and Thomas SP. (1995) A theory-based nursing intervention to instill hope in homeless veterans. Advances in Nursing Science: 18 (2); 76-90.

Toomey BG, First, RJ, Rife JC and Belcher JR. (1989) Evaluating community care for homeless mentally ill people. Social Work Research and abstracts: December.

Toro P, Passer Rabideau J, Bellavia C, Daeschler C, Wall D, Thomas D and Smith S. (1997) Evaluating an intervention for homeless persons: Results of a field experiment. Journal of Consulting and Clinical Psychology: 65 (3); 476-484.

Townsend and Davidson (1982) Inequalities in Health: The Black Report. Harmondsworth: Penguin

US Conference of Mayors. (1987) The continuing growth of hunger, homelessness and pverety in America's cities. Washington DC: Conference of Mayors.

US Conference of Mayors. (1986) The growth of hunger, homelessness and pverety in America's cities. Washington DC: Conference of Mayors.

Victor C, Connelly J, Roderick P, Cohen C. (1989) Use of hospital services by homeless families in an inner London health district. British Medical Journal, 299:725-7

Victor C. (1992) Health status of temporarily homeless population and residents of North West Thames Region. British Medical Journal, 305:387-91

Victor C. (1996) The health of the temporary homeless population. Journal of Interprofessional Care: 10 (3); 257-266.

Victor C. (1997) The health of homeless people in Britain. A review. European Journal of Public Health: 7; 398-404.

Vostanis P, Grattan E, Cumella S and Winchester C. (1997) Psychosocial functioning of homeless children. Journal of Academic Child and Adolescent Psychiatry: 36 (7); 881-889.

Vredevoe DL, Shuler P and Woo M. (1989) The homeless population: Challenges for research. Communicating Nursing Research; 39 (4) 22:228.

Wallymahmed M, Baker G, Humphris G, Dewey M and MacFarlane I. (1996) The development, reliability and validity of a disease specific quality of life model for adults with growth hormone deficiency. Clinical Endocrinology: 44; 403-411.

Warwick D and Lininger C (1975) The sample survey: Theory and practice. New York: Mcgraw-Hill.

Watson S and Austerberry H. (1986) Housing and homelessness: A feminist perspective. London: Routledge and Kegan Paul.

Weinberger M, Oddone EZ, Samsa GP and Lansman PB. (1996) Are health related quality of life measures affected by the mode of administration? Journal of Clinical Epidemiology: 49 (2); 135-140.

Weinreb L, Browne A and Berson (1995) Services for homeless pregnant women: Lessons from the field. American Journal of Orthopsychiatry; 65 (4): 492-501.

Weinreb L and Rossi P. (1995) The American homeless family shelter "system". Social Service Review: 69 (1); 86-107.

Whelan JA. (1992) Community treatment for the chronic public inebriate. In: National Institute on Alcohol Abuse and Alcoholism. Community demonstration projects for alcohol and drug abuse treatment of homeless individuals. Vol II: Case studies of nine community demonstration grants. Rockville, MD: ROW Sciences Inc.

Whynes D. (1990) Reported health problems and the socio-economic characteristics of the single homeless. British Journal of Social Work: 20; 355-371.

Widdowfield R. (1998) Quantifying homelessness: the limitations of official and unofficial statistics. Radical Statistics 67: 17-28

Wilkin D, Hallam L, and Doggett M. (1992) Measures of need and outcome for primary health care. Oxford: Oxford University Press.

Wilkinson R. (1990) Income distribution and mortality: a natural experiment. Sociology of Health and Illness: 12; 391-412.

Williams S, Michie S and Pattani S. (1998) Improving the health of the NHS workforce. London: Nuffield Trust.

Williams S. (1995) Review of primary care projects for homeless people. Final report. Department of Health.

Williams S and Allen I. (1989) Health Care for Single Homeless People. London: Policy Studies Institute.

Williams S and Allen I. (1991) Health care for single homeless people. In: Smith SJ, Knill-Jones R and McGuckin A (Eds). Housing for health. London: Longman.

Winkleby M and Boyce T. (1994) Health related risk factors of homeless families and single adults. Journal of community health: 19 (1); 7-23.

Winn L. (1993) Homelessness: What can the health service do? Kings Fund: London. (Short report)

Wofford J and Schwartz E. (1995) Compassionate care decreased emergency departments use by homeless persons. ACP Journal Club: Sept-Oct; 123:36.

Wolf N, Helminiak TW, Morse GA, Calsyn R, Klinkenberg WD and Trusty ML. (1997) Cost-effectiveness evaluation of three approaches to case management for homeless mentally ill clients. American Journal of Psychiatry: 154 (3); 341-348.

Wood N, Wilkinson C and Kumar A. (1997) Do the homeless get a fair deal from General Practitioners. Journal of Royal Society of Health: 117 (5); 292-297.

World Health Organisation Scientific Group on Treatment of Psychiatric Disorders. (1991) Evaluation of Methods for the Treatment of Mental Disorders. Geneva: WHO.

World Health Organisation (1993)Health for All: the health policy for Europe. WHO Regional Office for Europe: Copenhagen.

Wright J. (1990) The national health care of the homeless program. In Bingham R, Green R and White S The homeless in contemporary society. Sage: California.

Wright JD. (1992) Sober transitional housing and employment project. In: National Institute on Alcohol Abuse and Alcoholism. Community demonstration projects for alcohol and drug abuse treatment of homeless individuals. Vol II: Case studies of nine community demonstration grants. Rockville, MD: ROW Sciences Inc.

Wright JD. (1987) The national health care for the homeless programme. In Bingham RD, Green RE and SB White (Eds) The homeless in contemporary society. Newbury Park, California: Sage Publications. (pp 150-69).

Wright JD. (1991) Methodological issues in evaluating the national health care for homeless program. New Directions for Program Evaluation: 52 (Winter); 61-73.

Zautra A. (1983) Social resources and quality of life. American Journal of Community Psychology: 11; 275-290.

Zima B, Wells K and Freeman H. (1994) Emotional and behavioural problems and severe academic delay in sheltered homeless children in Los Angeles County. American Journal of Public Health: 84 (2); 260-4

Zimmer R. (1992) Outreach and engagement for homeless alcoholic women. In: National Institute on Alcohol Abuse and Alcoholism. Community demonstration projects for alcohol and drug abuse treatment of homeless individuals. Vol II: Case studies of nine community demonstration grants. Rockville, MD: ROW Sciences Inc.

Zwarenstein M, Stephenson B and Johnston L. (1999) The effects of case management on outcomes of care. Cochrane Library protocol.