

Perceptions of Patient Safety Culture amongst Health Care Workers in the Hospitals of Northeast Libya

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Dedication

I would like to dedicate my PhD work to every health care worker who makes patient safety part of their daily business.

Abstract:

Keyword: Safety culture, Patient safety culture assessment, Perception of health care workers, Hospitals and Libya.

Objective: To examine the perception of patient safety culture amongst health care workers in Libyan Hospitals.

Study Design: The study adopted a mixed methods approach with 2 phases. Phase 1 was conducted prior to the Libyan revolution. This was a quantitative research study, which used the Survey of Hospital Patient Safety Culture (HSOPSC) that was developed by the US Agency for Health Care Research and Quality (AHRQ, 2004). Phase 2 was conducted post revolution and it was a qualitative research study, which used semi-structured interviews.

Setting: The three largest hospitals which were located in the Northeast of Libya were involved in the study.

Participants and sampling: Phase 1 of the study included a stratified sample of 346 health care workers who were working as Doctors, Nurses, Technicians, Pharmacists and Managers. Phase 2 of the study used a purposeful sample which involved 27 health care workers from those took part in the survey study.

Main Outcome Measures: The survey measured twelve Patient Safety Culture dimensions. It indicated that ten of the twelve dimensions were weak and need to be improved. The interview findings also showed that the 12 patient safety culture dimensions were very weak and shed light on some of the reasons for this sub-optimal practice.

Findings: The respondents who took part in the study were from different departments in the three hospitals. The survey showed the dimensions with acceptable positive ratings were teamwork within hospitals and organizational learning and continuous improvement, while those with lowest ratings included frequency of reporting errors, non-punitive response to

error and communication and openness. Approximately 60% of health care workers perceived patient safety culture practice in Libya negatively. Twenty respondents (5.8%) who gave an excellent grade for patient safety in their hospitals. Furthermore, the interviews results revealed that patient safety culture dimensions were very weak. The interview explored further factors and issues of poor safety culture in the 3 hospitals; which had not been identified in the survey. These were related to results of the political changes, administrative factors, environmental issues, organisational system issues, and health care workers matters.

Conclusions: The study identified that the current state of patient safety culture in Libyan hospitals is very weak and there is a need for improvement to safety practice and for promotion of this important issue amongst those health care workers and health managers working at the frontline of health care delivery. Furthermore, the study found that the level of patient safety in the 3 hospitals was below an unacceptable level according to the perceptions of the health care staff. It was noted that there was no effective patient safety system in any of the 3 hospitals to deal with patient safety issues and there were no proactive patient safety measures in place to reduce the level of risk to patients.

Furthermore, the study revealed other significant aspects that represent a serious threat to patient safety in the 3 hospitals, which were mainly due to poor hospital management, ineffective emergency services and a lack of training programmes. Moreover, poor organisation of monitoring systems for the licensing of medical practice of health care workers was shown to have a significant impact on patient safety culture. Lastly, the study showed the political change in Libya had affected patients' safety sharply as result of the military conflict and the lack of hospitals' preparedness to cope with such emergency events.

Table of Contents

Acknowledgements.....	ii
Dedication.....	iii
Abstract:.....	iv
Table of Contents.....	vi
Chapter 1: Introduction to the study	1
1.1. Introduction:.....	1
1.2. Why study patient safety.....	1
1.3. Significance of the Study	5
1.4. Organisation of the thesis.....	7
1.5. Summary	9
Chapter 2: The Health Care System of Libya	11
2.1. Introduction:.....	11
2.2. The health care system prior to the revolution.....	15
2.3. The Libyan health care system following the revolution.....	21
2.4. The implication of the revolution for patient safety.....	24
2.5. Summary	33
Chapter 3: Literature review	35
3.1. Introduction:.....	35
3.2. Literature review approach	35
3.3.1. The concept of safety culture	38
3.3.2. Patient safety background:	48
3.3.3. Assessment of patient safety culture	56
3.4. Factors affecting patient safety culture	58
3.4.1. Leadership and management support for safety issues	59
3.4.2. A system for reporting errors and non-punitive response and blame free environment. ...	61
3.4.3. Organisational learning continuous improvement of patient safety.....	67
3.4.4. Communication and Openness.....	70
3.4.5. Teamwork and patient safety	74
3.4.6. Staffing level and Patient safety.....	77
3.4.7. Handover and Patient Safety.....	79
3.4.8. Summary:.....	85
Chapter 4: Methodology	86

4.1. Introduction.....	86
4.2. Research methodology.....	86
4.3. Aim of the study.....	87
4.4. Study design.....	88
4.5. Setting.....	91
4.6. Phase 1: Quantitative Research.....	91
4.6.1. Data collection instrument.....	93
4.6.2. Reliability and validity of the HSOPSC.....	93
4.6.3. Questionnaire translation.....	98
4.6.4. Pre-test of the Questionnaire.....	99
4.6.5. Inclusion and exclusion criteria.....	100
4.6.6. Sampling.....	100
4.6.7. Data collection methods:.....	103
4.6.8. Response rate:.....	104
4.6.9. Data analysis:.....	105
4.7. Phase 2: Qualitative research.....	106
4.7.1. Aim of Phase 2: qualitative research.....	110
4.7.2. The research questions:.....	110
4.7.3. Sampling:.....	110
4.7.4. Data collection methods:.....	112
4.7.5. Data collection procedure:.....	114
4.7.6. Interview questions:.....	114
4.7.7. The context of the data collection:.....	116
4.7.8. Qualitative data analysis:.....	120
4.7.9. Rigour.....	121
4.8. Ethical consideration:.....	123
4.9. Summary.....	125
Chapter 5: Quantitative findings.....	126
5.1. Introduction:.....	126
5.2. Questionnaires analysis.....	126
5.3. The questionnaire findings.....	127
5.4. Conclusion:.....	154
Chapter 6: Qualitative findings.....	156
6.1. Introduction.....	156

6.2. Qualitative analysis:.....	157
6.3. The qualitative findings	159
6.3.1. Superordinate theme: Politics and policy.....	163
6.3.1.1. Subordinate theme: Political Situation.....	163
6.3.1.2. Subordinate theme: Administrative factors.....	166
6.3.1.3. Subordinate themes: Environmental issues.....	168
6.3.2. Superordinate theme: Organisational system.....	172
6.3.2.1. Subordinate theme: Structure.....	172
6.3.2.2. Subordinate themes: Process.....	175
6.3.3. Superordinate theme: Health care workers	184
6.3.3.1. Subordinate theme: Professional issues	184
6.3.3.2. Subordinate theme: Competency issues.....	189
6.3.3.3. Subordinate theme: Interpersonal issues	192
6.4. Summary:.....	194
Chapter Seven: Discussion	196
7.1. Introduction:.....	196
7.2. Research question 1: What is the perception of patient safety culture among health care workers in Libyan hospitals?	196
7.2.1. Overall Perception:	196
7.3. Research question 2: Why is patient safety culture practice very weak in Libyan hospitals? .	199
7.3.1. The influence of hospital management	200
7.3.2. Staffing level:.....	206
7.3.3. Inter-professional communication	208
7.3.4. Teamwork	210
7.3.5. Handover.....	213
7.3.6. Variance in safety culture practice.....	215
7.3.7. Clinical practice	223
7.3.8. System and process	228
7.3.9. Political situation.....	233
7.3.10. Education and training	234
7.4. Research question 3: How do Libyan health care workers think they can improve patient safety culture practice in Libyan hospitals?	236
Chapter 8: Conclusion and recommendations	239
8.1. Introduction:.....	239
8.2. Conclusion	239

8.3. Recommendations:.....	244
8.4. Research limitations:.....	251
8.5. Implications for Future Research:.....	255
References:.....	256
Appendix 1: The Questionnaire of the study	284
Appendix 2: Consent form Phase 1	288
Appendix 3: Consent form Phase 2.....	289
Appendix 4: Participant information sheet	290
Appendix 5: A letter Invitation	293
Appendix 6: Semi-Interview Guideline and Interview questions	294
Appendix 7: Ethical Approval of the Phase 1(Quantitative Research).....	296
Appendix 8: Ethical approval of the Phase 2 (Qualitative Research).....	297
Appendix 9: Ethical Amendment.....	298
Appendix 10: Notification Letter to the Ethics committee of LJMU	299
Appendix 11: Data collection permission from Hospital A.....	301
Appendix 12: Data collection permission from Hospital B	302
Appendix 13: Data collection permission from Hospital C	303
Appendix 14: Qualitative data categorisation.....	304
Appendix 15: Theme coding table	308
Appendix 16: Interview Sample	313
Appendix 17: Themes Sample	321
Appendix 18: Research reflection.....	323

List of Tables

Table 1.1: Organisation of the study	7
Table 2.1: Libyan population over the last 6 years	13
Table 2.2: Show the number of health care organisations in Libya.....	18
Table 2.3: Show the size and location of hospitals under the study.....	19
Table 3.1: Aspects which included in quality appraisal tools	37
Table 3.2: Critical appraisal of literature adopted from (Whittemore and Knafl, 2005)	37
Table 3.3: Summary of the similarities and differences between the concepts of safety climate and safety culture.....	40
Table 4.1: Outline the structure of mixed methods (riangulation approach) for this study.	91
Table 4.2: Reliability of safety culture dimensions	96
Table 4.3: Shows classification of population under study in the 3 hospitals	102
Table 4.4: Distribution of the study sample from the 3 hospitals	102
Table 4.5: Response rate of the health care workers.....	105
Table 4.6: Sample selection of health care workers based on their perception toward patient safety	112
Table 4.7: Number of participants who selected to answer interviews questions via email from the sample in each of the three hospitals.	119
Table 4.8: Number of participants who answered the interview questions via email in each of the 3 hospitals.	119
Table 4.9: Number of face-to-face interviews conducted with a selection of participants who had answered the interview questions by email.....	119
Table 5.1: Health Care Workers Characteristics.....	127
Table 5.2: Health care workers and work areas	128
Table 5.3: Health care workers overall perceptions towards patient safety.....	129
Table 5.4: Reporting of adverse events by health care workers	130
Table 5.5: Managers' support for patient safety	131
Table 5.6: Learning environment in hospitals	132
Table 5.7: Teamwork within hospital departments.....	132
Table 5.8: Communication and Openness within hospitals	133
Table 5.9: Feedback and Communication about Error by managers	133
Table 5.10: Non-punitive response to Errors	134
Table 5.11: Staffing in hospitals	134
Table 5.12: Hospital's management support for patient safety.....	135
Table 5.13: Teamwork across Hospitals	135

Table 5.14: Handover and patient safety	136
Table 5.15: Patient Safety Grade in three hospitals	136
Table 5.16: Overall of responses on Patient Safety Culture Dimensions	137
Table 5.17: Percentage of the positive answers on the Patient Safety Culture Dimensions.	139
Table 5.18: Patient safety culture dimensions in work areas.	140
Table 5.19: Frequency of events reporting in work areas	141
Table 5.20: Communication and openness in work areas	141
Table 5.21: Handover and transition of patients in work areas.....	142
Table 5.22: Patient safety culture dimensions with health care worker groups	142
Table 5.23: Overall perception of safety with health care workers	143
Table 5.24: Non-punitive response to errors with health care workers.	144
Table 5.25: Patient safety culture dimensions and work hours per week	144
Table 5.26: Frequency of events reporting and work hours per week.	145
Table 5.27: Hand over and work hours per week.	146
Table 5.28: Patient Safety Culture Dimensions in 3 hospitals	146
Table 5.29: Overall perception of safety and hospitals.....	147
Table 5.30: Frequency of events reporting in three hospitals.	147
Table 5.31: Organisational learning and continuous improvement for patient safety and hospitals ..	148
Table 5.32: Teamwork within departments and hospitals	148
Table 5.33: Communication and openness and hospitals	149
Table 5.34: Feedbacks and communication about errors and hospitals.....	150
Table 5.35: Investigation of management support for patient's safety in hospitals.....	150
Table 5.36: Teamwork across hospital departments.	151
Table 5.37: Handover and transition on the patients in three hospitals.	151
Table 5.38: Dimensions that predicted level of patient safety culture in the hospitals:.....	152
Table 5.39: The correlation between patient safety culture dimensions	153
Table 6.1: Displays each hospital and health care workers and their code in the data analysis	159
Table 6.2: Interview questions	160

List of Figures

Figure 2.1: Libya, the main cities and the three cities where the hospitals under study are located.....	12
Figure 2.2: The structure of Libyan health care system.....	17
Figure 3.1: Selection of the study literature	36
Figure 5.1: Gives more detail of the number of events that were reported by health care workers in the previous 12 months.	131
Figure 5.2: Respondents' positive and negative answer on items of Patient Safety Culture.....	138
Figure 6.1: Qualitative data categorisation	161
Figure 6.2: Qualitative findings Superordinate, Subordinate and Themes	162
Figure 8.1: ERHFE Patient Safety Framework	245

Chapter 1: Introduction to the study

1.1 Introduction:

The aim of this chapter is to provide an introduction to the study. It positions the researcher within the context of the study and gives a justification for the necessity to conduct this study. It also, presents the organization of the study and the ensuing thesis, which is divided into eight chapters.

1.2 Why study patient safety

In recent years there has been growing concern about patient safety and this is becoming a global problem (WHO, 2008). It is estimated that ten million patients worldwide are harmed unnecessarily and suffer from disabling injuries or death each year as result of unsafe medical practices and care (WHO, 2014). The Institute of Medicine in the USA (Kohn et al., 2000) reported that around 44,000 to 98,000 patients die each year as a result of medical errors in various hospitals, and consequently this causes the USA great financial damage estimated at between US\$17 billion to US\$29 billion, in terms of negative social impact such as disability, lost income, and health care costs.

Kohn et al. (2000) noted that more people died in the USA as a result of medical errors than road traffic accidents. Furthermore, Pronovost et al. (2006a) estimated that 80,000 patients suffered from hospital acquired infections annually in the United States, and up to 28,000 of them died, and these preventable deaths cost the health authorities around \$2.3 billion. Moreover, Pittet et al. (2008) indicated that the number of patients who are

affected by hospital infections in developing countries is more than 25 % of all admissions and this figure could be 20 times higher than in industrial countries. According to WHO (2002) globally, the chance that a person might be harmed in an aircraft journey is about one in a million while the possibility of a patient being harmed during their health care journey in health organisations is significantly higher, with a one in 300 chance of harm.

In Europe the estimates are that around one in every ten patients admitted to hospital suffer some form of avoidable harm (WHO, 2007b). A recent study conducted by Panesar et al. (2013) found that the largest proportion of surgical patient safety incidents that were reported to the National Reporting and Learning System (NRLS) in England and Wales, 48,095 out of 163,595 (30.1%), had been reported because of trauma and orthopaedics related incidents and iatrogenic harm to the patients, with 0.15% of the incidents having resulted in death.

Ocasio (2005) suggests that a deficiency in the safety culture of an organisation has resulted in many accidents. Indeed, poor safety culture was found to be a causal factor of medical errors in relation to the paediatric heart surgery scandal in a hospital in Bristol, England (Kennedy, 2001) where 29 children heart surgery cases died of 53 patients as result of bad medical practice.

Wilson et al. (2012) conducted a retrospective study that reviewed medical records of 15,548 hospital admissions in eight countries from Eastern Mediterranean and African Regions, i.e. Yemen, Egypt, Sudan, Jordan, Kenya, South Africa, Tunisia and Morocco. A random sample of patients' admissions records was taken from a convenience sample of twenty six hospitals. Overall, it was found that one or more adverse events were shown in 8.2% of all the records, with a range for the countries from 2.5% to 18.4% of their records.

It was judged that 83% of these adverse events could have been prevented and, indeed, approximately 30% of the adverse events had led to the death of the patient in question. Around 34% of the adverse events had occurred because of errors in therapy treatment. Most events were thought to be due to a failure of clinical staff to follow appropriate protocols or policies or a lack of adequate supervision and training.

Furthermore, Abbas et al. (2008) carried out a study in the neighbouring country of Egypt, at the Alexandria hospital. This study considered the perceptions of healthcare providers toward a safety climate and found that the majority of participants held negative attitudes toward patient safety. Such attitudes towards patient safety experience, from a neighbouring country with similar healthcare practices, could be a warning to the Libyan health authorities that the Libyan health system needs to develop a positive patient safety culture.

A study conducted by El-Bouri (2009) highlighted that considerable adverse events have been found as a result of poor hygienic practice in Libyan hospitals. In addition Mustafa and Kowalski, (2010) suggested that the current pharmaceutical system in Libya need to be reformed to provide safe health services. Moreover, it was reported by WHO (2011) that Libyan nursing staff are not well qualified and receive inadequate training. Shukri (2005) argued that many patient safety problems in Libyan hospitals are connected to unqualified nurses, who he asserts work with a low level of knowledge and are unskilled and incompetent.

Such recent research data from the Arabic context gives a strong indication of the risk to patients in the hospital environment and the importance of studying patient safety in Libyan hospitals. However, there is little empirical research into the safety aspects of health care in Libya.

It is therefore worthwhile investigating the views and opinions of key figures working in different hospitals in Libya in order to understand the phenomenon of medical errors in hospitals and identify factors that contribute to such problems so that they can be addressed in clinical practice. It is important to assess the perception of patient safety culture in Libyan hospitals as this would be of value to the health care professionals, managers and health policymakers in providing them with a clearer picture of the situation in order to improve the situation.

The researcher originally hails from Derna City in Libya. As well as having a natural interest in the welfare of people in his home city, he has an academic grounding in Public Health, having studied for a Master's in Public Health in Holland. Also, he has professional experience working as a Public Health Officer for the Ministry of Health (MOH) and as the Director of a health centre for the MOH; both of these professional roles were in Derna City itself. Broader experience has also been gained by the researcher through his work as a lecturer of Public Health at the university in Derna, Omar Mukhtar University. During the time spent in this lecturing role, a number of field visits were conducted as part of the study programme to enable students to gain experience observing working practices in several Libyan hospitals.

As this subject area could be of direct benefit to patients and could help in ensuring Libyan healthcare is safe for them, it proved to be of great interest to the researcher. The assessment of patient safety in hospitals is a new field of study for Libya, and it is the belief of the researcher that focused assessment of the current state of Libyan hospitals could help in their subsequent improvement.

1.3 Significance of the Study

Despite the fact that patient safety has become a worldwide issue and an important area for research, in Libya there is as yet very little research done in this field. The main reason for this omission is the fact that Libya was under sanction for many years until September, 2003 and this has resulted in an outdated healthcare system. In fact, a recent report published El Oakley et al.(2013) shows that the current Libyan health care system needs to be reformed as it is not functioning well and does not provide good quality of health care. The report outlined some key negative issues that mean the Libyan system does not meet Libyan patients' health care needs. These issues are mainly related to the absence of good leadership and their imbalance in allocation of human resource within the health care system, leaving some areas deplete of staff, whilst others are overwhelmed by excessive staffing numbers.

Furthermore, according to El Oakley et al. (2013) there is no effective pharmaceutical regulation and technological infrastructure in Libya. Moreover, the current system does not comply with any quality standards and there is an absence of accountability and systems monitoring. Clearly, such far reaching shortcomings will put Libyan patients in a very risky position. El Taguri et al. (2008) have suggested numerous factors that may contribute to medical errors in Libyan hospitals. They consider that these factors are mainly related to poor quality care and the existence of a system with low performance.

In addition, they believe that hospitals are managed by a crisis approach rather than through objectives management. Hence, in order to reach more reliable processes to preserve patient safety it is imperative to examine closely the strategies and the system in which these hospitals operate. They consider that in Libya, most adverse incidents are related to the system in which the individuals are working. Certainly, looking at what is

wrong in the system helps organisations and medical staff to learn lessons and reduce the chances of adverse incidents (Plus Report, 2009). In fact, according to Carpenter et al. (2010) and WHO (2005a) there is greater probability that adverse events are more frequent in developing countries where resources are lacking, information and technology are outdated and the health care system is not well-organised. The statistics show that the hospital infection rate in some developing countries is as much as 20 times higher than in developed countries (Pittet et al., 2008)

Rosenthal et al. (2006) conducted a study in 55 intensive care units (ICUs) of 46 hospitals in Argentina, Brazil, Colombia, India, Mexico, Morocco, Peru, and Turkey to ascertain which health care associated infections had occurred as a result of the use of invasive medical devices in those ICUs. The study found that device-associated infections accounted for 14.7% of the overall infections within the ICUs. The study concluded that the hospitals of the developing countries need to have active infection control programmes that enhance surveillance and implement prevention guidelines. Moreover, Ogwang et al. (2013) undertook a recent study in another developing country in a major hospital in Uganda. The study found a significant prevalence of hospital acquired infection (HAI) with 17% of infected patients in 2011. However, the study concluded that the prevalence of HAI in developing countries can be reduced effectively through adopting basic procedures for controlling infection.

In addition to the difficulties associated with HAI in developing countries, the WHO (2002) state that developing countries account for around 77% of all reported cases of counterfeit or substandard drugs. It is also reported by WHO (2005b) that at least half of all medical equipment in many of these countries is unusable or only partly usable, resulting in an increased risk of harm to patients. Moreover, other factors have a negative impact in terms of mortality and disability that are connected with incompetence,

inadequate training and poor skills of health care workers (WHO, 2005b). Health authorities in developing countries have therefore been asked to set up and develop patient safety systems, which embrace both a positive culture of safety and organisational support for safety processes (WHO, 2005a). In the light of the aforementioned concerns, this study will assess the perception of Libyan health care workers in hospitals of patient safety culture.

1.4 Organisation of the thesis

The thesis is organised into eight chapters. Table 1.1 displays the structure of the study.

Table 1.1 Organisation of the study

Chapter One	Introduction.
Chapter Two	Background to the current political situation and the organisation of health care services in Libya.
Chapter Three	Literature Review.
Chapter Four	Research Methodology.
Chapter Five	Findings of Phase 1.
Chapter Six	Findings of Phase 2.
Chapter Seven	Discussion.
Chapter Eight	Conclusions and Recommendations.

A brief description of each chapter follows:

Chapter one: This chapter presents an introduction to the study, the purpose of the Study, the problem to be addressed and identifies the nature of the research problem and the importance of the study. It also explains the objectives and questions of the study and

provides a summary of the research methodology. It also sets out the structure of the thesis.

Chapter Two: This chapter highlights an overview of some aspects of the Libyan environment in relation to its geography, population and political system. Also, it reviews the Libyan health care system before and after the recent political changes and considers the implications of the revolution on patient safety.

Chapter Three: This chapter critically reviews the literature related to the concept of safety culture and patient safety. It presents different concepts and definitions of safety culture. It reviews the previous patient safety studies and the effect of the various patient safety culture dimensions on patient safety. It also elaborates the rationale of conducting the current study in Libya.

Chapter Four: This chapter discusses the research design and the methods used to carry out the research. The two main paradigms that underpin the study, i.e. the positivistic and phenomenological, are explored in this chapter. In addition, a description of the dominant research approaches will be provided, i.e. the mixed methods research using both quantitative and qualitative approaches, as well as the main methods of data collection used (questionnaire and interview).

Chapter Five: Presents findings of the first phase, the quantitative research which involved a hospital survey of 346 health care workers that focussed on patient safety culture. The findings are presented in terms of descriptive information. This measured the perception of patient safety dimensions among different health care worker groups and showed that 10 of 12 patient safety culture dimensions were considered to be poor and in need of improvement. In addition, some inferential analysis is presented to explore the

relationships between the demographic profile of the participants and perceptions of the patient safety culture dimensions.

Chapter Six: shows the findings of the second phase, qualitative element of the study. The findings were obtained from 27 semi-structured interviews, completed either via email, face to face or using a combination of both approaches with the same health care workers who took part in phase one. The findings revealed in detail the main reasons behind the poor patient safety practice in hospitals.

Chapter Seven: presents the discussion of the main findings of the study and considers these with reference to the published literature that relates to patient safety culture.

Chapter Eight: The conclusions that can be drawn from the study are addressed in this chapter and the limitations of the study are also considered. Based on the research conclusions, recommendations are provided along with suggestions for future areas of research.

1.5 Summary

This chapter has provided an introduction to the study positions, the researcher within its context and provides background to his interest in the field of study. Justification is provided for the need for the study, given the growing concerns about patient safety across the world, particularly in developing countries such as Libya. The chapter notes that little research has been undertaken in the area of patient safety for the outdated healthcare system in Libya, and an outline is provided of how the thesis will be structured to go some way towards addressing this shortfall. Table 1.1 shows the structure of the study. The next chapter provides background information about Libya, and its health care system, to help

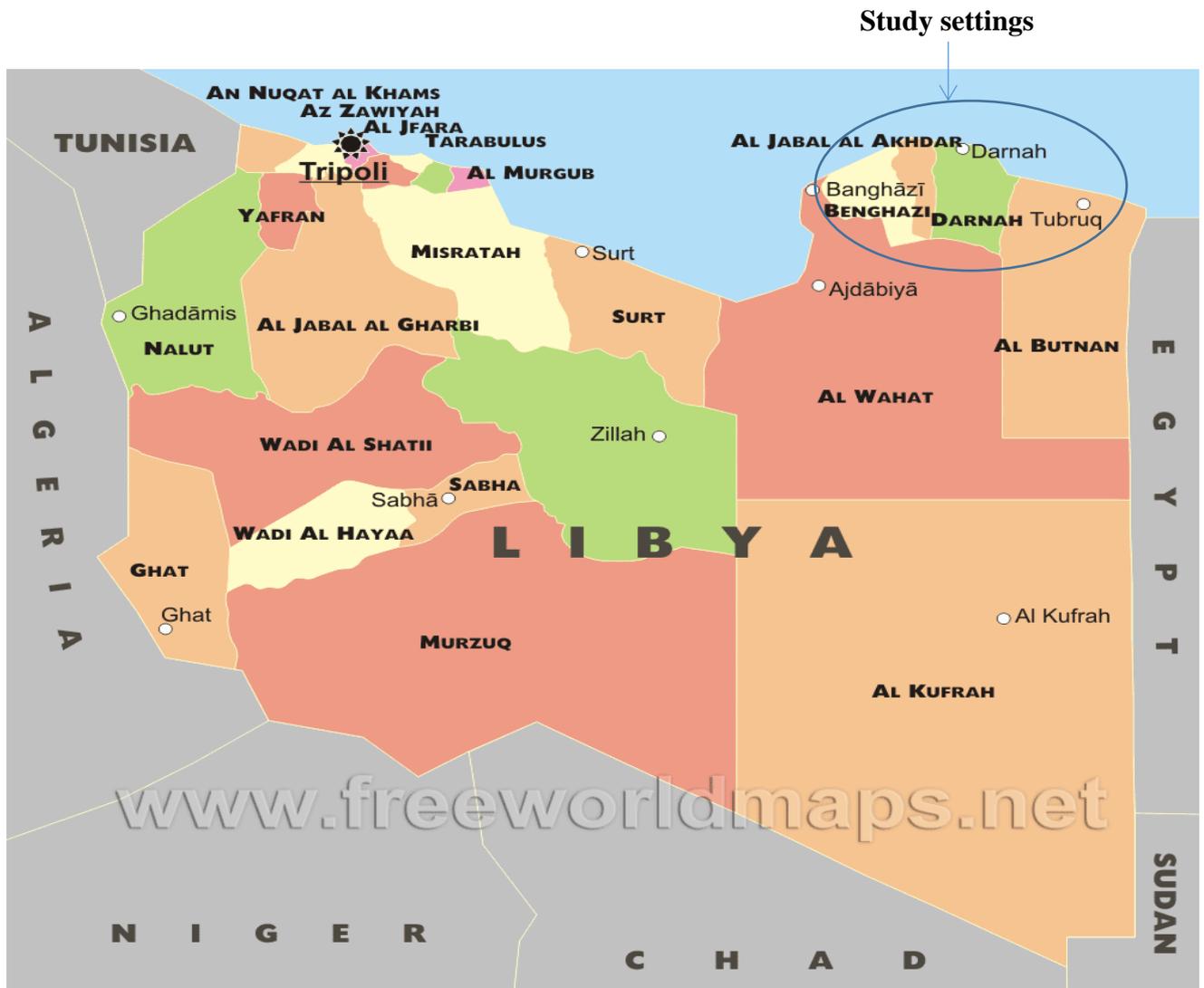
provide a fuller picture of the context within which any attempts at assessing patient safety practice in Libyan hospitals sit.

Chapter 2: The Health Care System of Libya

2.1 Introduction:

Chapter two provides background information about the current political system in Libya, giving an overview of the health care system in Libya in terms of its facilities, human resources and overall structure. It describes the challenges and problems faced by the healthcare system in Libya, and the role of political forces, both before and after the uprising.

Libya is the 15th largest country in the world and the third largest on the African continent with a total area of approximately 1,759,540 square kilometres. It is situated on the southern Mediterranean coast sharing borders with Tunisia and Algeria to the west, Egypt to the east, and Sudan, Niger and Chad to the south. (Otman & Karlberg, 2007). As Libya has a Mediterranean coastline of approximately 1900 km, the country is considered to be a gateway to Europe and therefore a strategic location for the African continent. Such a large land mass has a relatively small population of around 6 million people, see Table 2.1. The majority of the population live in the coastal areas, although in the mainly desert landscape of the south there are numerous towns (See Figure 2.1). Tripoli is the capital of the country lying in the north-western part of Libya with a population of 1.2 million; approximately 1000km to the west of the second biggest city, Benghazi city, which lies in the north-eastern region with a population 650.000 (Mohammed Bayoud, 2013).



Source: Free world maps.net

Figure (2.1) Libya, the main cities and a general area where the 3 hospitals under study are located.

Most Libyans are of the Muslim faith. The majority of the people are Arabic and speak the Arabic language. However, a small percentage of Libyans belong to the Tawarg, Tebo and Burbal tribes, and speak both Arabic and their own language. As the country is a Mediterranean one, it has a pleasant climate; four seasons with a warm winter and a dry summer.

Table 2 .1 Libyan population over the last 6 years

Year	Male	Female	Total
2006	2,708,415	2,589,737	5,298,152
2007	2,756,625	2,635,834	5,392,459
2008	2,805,693	2,682,751	5,488,444
2009	2,840,487	2,762,418	5,602,905
2010	2,898,157	2,814,748	5,712,905
2012	3,009,763	2,923,142	5,932,905

Source: Information & Documentation centre (2009)

As an oil-producing country, the main income for Libya comes from its oil revenue, along with further revenue from the petrochemical industry and from agricultural activities. In total, Libyan oil resources account for around 95% of the export earnings of Libya and 50% and 75% of the Gross Domestic Product and government receipts, respectively. With the discovery of natural gas and oil in the late 1950s, the economy of Libya was transformed. The country had been one of the poorest in the world and reliant on foreign aid; nowadays, with oil revenues forming the main source of the foreign exchange, the economy of the country has grown to be one of the biggest of all the Arabic and African countries (Zeiton, 2012).

Libya had been a colony of Italy from the period from 1911 up until the end of World War 2, at which point it became a protectorate of the British. Libya became an independent nation in 1951 with the establishment of a kingdom and the National Congress elected Idris as King of Libya. In 1969 Colonel Muammar Gaddafi took control by military overthrow and led the country until the revolution of the 17th February 2011.

His political philosophy was contained in the Green Book, published in the 1970s, and in 1977 his policies were implemented with the idea of distribution of authority from the local community to regional state headquarters called Shabia (El Taguri et al., 2008).

Information, needs and demands made at the local level were collated at the Shabia and representations were made to the Basic People's Congresses where decisions over resourcing matters and laws, including health related were made. Following this, direction was made to the General People's Committee for implementation. However, despite such a seemingly democratic approach, the influence of that system of representation was only minor as the overarching autocratic authority actually lay with Gaddafi himself.

Following the revolutions in Tunisia and Egypt, there was an eruption of major unrest in the eastern Libyan city of Benghazi on the 15th February of 2011. Uprisings gained in popularity across the country whilst the Gaddafi regime retaliated violently against the protesters. Soon, the situation fell into one of intense armed conflict. On the opposition side, significant ground was made and the Transitional National Council (NTC) was established on 27th February in Benghazi and they took control of several major centres of population. However, as the military forces backing Gaddafi had better equipment, a number of major offensives were organised and launched that led to many people being injured, killed or going missing.

Eventually, NATO and the coalition forces intervened in the conflict and, despite the adoption of the UN Security Council Resolution of 1973 on the 17th March for the imposition of a no-fly zone over Libya, the clashes continued. After 7 months, Gaddafi was ousted and killed and the 42 year regime that had controlled Libya finally collapsed. (Ahmida 2012 & Van Genugten, 2011).

2.2 The health care system prior to the revolution

At the time of independence in 1951, oil had not been discovered in Libya and so the country was poor and relied on external aid. A basic health care system did exist at that time though with limited resources, and it comprised of fourteen hospitals for the whole country, serving a population of approximately 6 million with a total capacity of 1600 beds along with a number of small health centres. Following the discovery of oil in the 1950s, there was a massive amount of investment in the health care system between 1970 and 1979. There was an emphasis on constructing hospitals and community health centres and the provision of the associated facilities and services. Although the model of health care is a mixture of public and private sector, the main provider of health services in Libya is the public sector with healthcare, such as curative, preventive and rehabilitation services, provided free to all Libyan citizens. Most levels of the health service in Libya are decentralised and provided through a series of centres, primary health care units, rehabilitation centres, polyclinics, tertiary care specialised hospitals and general hospitals in both urban and rural areas. There are three levels of operation for the system of health care delivery as follows (WHO, 2007c). See figure 2.2

i) At the first level of healthcare primary health care units provide preventive and curative services for between 5,000 and 10,000 citizens and primary health care centres serving between 10,000 and 26,000 citizens. Also, polyclinics staffed by specialist physicians, containing laboratories, a pharmacy and radiological services, serve between 50,000 and 60,000 citizens. The primary health care (PHC) services provided at the primary level in PHC units and centres include minor surgery, rehabilitation, care of children, family planning, general medical care for the adult and elderly populations, antenatal care, obstetric care, the dispensing of pharmaceutical prescriptions, first aid, school health

services, preventive services (e.g. screening and immunisation) and health promotion services (HDRC, 2011).

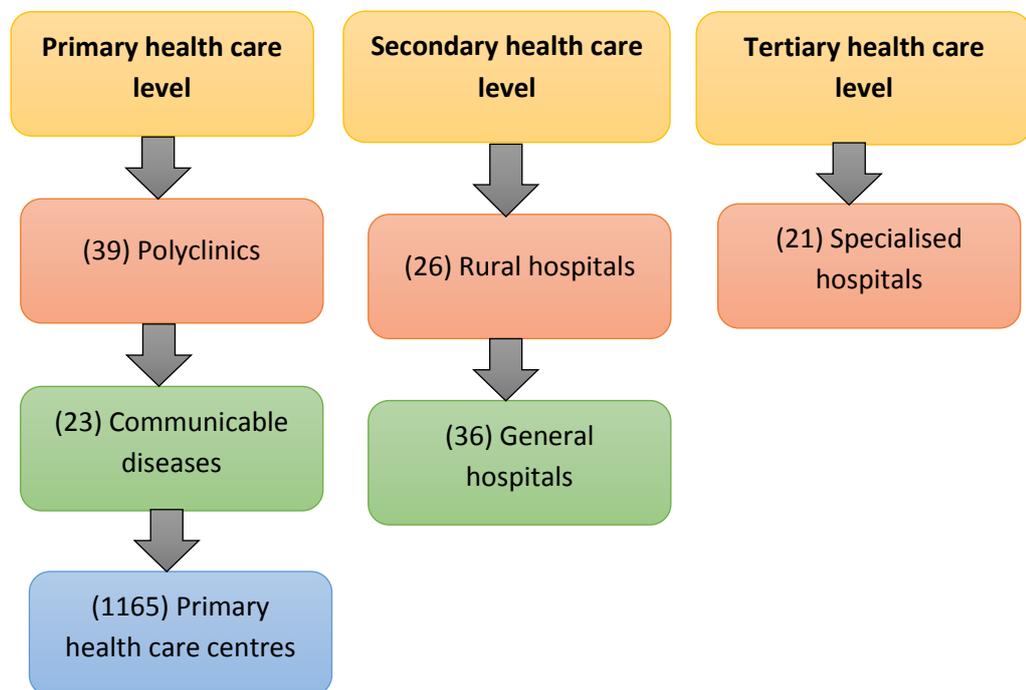
In comparison, GP services in the UK provide general health care for minor problems, which relieves secondary hospitals from work overload. In Libya, however, health care centres lack key pieces of equipment and do not work effectively; there is a lack of coordination with secondary level hospitals, and often patients go directly to the hospital rather than via primary care.

ii) At the secondary level of the health care system in Libya, there are a number of general hospitals in both urban and rural areas to which people are referred following attention at the primary level. At the secondary level, health care is provided through a network of specialised hospitals and general hospitals with, ideally, patient care provided for complex cases. There is, however, an excessive burden on hospitals due to the poor referral system and a lack of coordination between the secondary and primary levels. In total, there are 96 hospitals in Libya (Information & Documentation Centre, 2009)) with a total capacity of 20689 beds, i.e. 3.7 beds per 1000 population (See Tables 2.2& 2.3).

These facilities exist in addition to the Social Solidarity Fund; supervised social and rehabilitation services. Most specialists and general hospitals are centrally managed and run, whilst the polyclinic centres and rural hospitals are managed by the Secretariats of Health of State (at the district level). There is a hierarchical organisation for the entire health system in Libya, with health centres and the polyclinics at the bottom. If patients require more specialised equipment and care, they are referred to hospitals at the district and regional levels. If the necessary treatment cannot be provided at these facilities then the patient is referred to a tertiary level hospital (Abudejaja & Singh, 2000). In comparison to the UK system, Libyan hospitals suffer from poor quality services and management and a lack of suitable training for the staff. Also, Libya is beset with corruption, and delays to

building, maintenance and supply of equipment lead to major operational shortcomings (Taguri et al., 2008; Mohapatra & Al Shekteria, 2009; Barakat, 2012; Hamroush ,2012 & MZeiton, 2012).

iii) The third level of the health care system is comprised of specialised, tertiary care hospitals. Although it currently has only a role in the main cities, there is a growing private health care sector in Libya with the government having decided to encourage its expansion of private hospitals and clinics. Serious attempts are also being made for the introduction of family physician practices alongside the establishment of the required regulations and rules. Consideration is also being given to the introduction of health insurance. Currently, all charges for services provided by the private sector are paid for from personal funds; the private health sector is growing though remains small as there is a lack of an overall approach to policy for the sector from the health authorities (WHO, 2006).



Source: WHO (2007)

Figure (2.2) the structure of Libyan health care system

The big cities throughout Libya are the location for the general hospitals, whilst the rural areas and small towns are the location for a number of rural hospitals. Up to date and accurate health data about the libyan helath care system is still mssing as result of being no good health information system and documentation in place (WHO, 2007b). There are a total of 36 general hospitals of various capacities in terms of the number of beds in Libya. It was reported by Salam et al., (2010) that the Libyan people are not happy with, and lack confidence in, the quality of health care in Libya hospitals which has resulted in many of them seeking health care outside the country.

Moreover, another recent piece of research undertaken by AlJarallah and Alrowaiss (2013) in the Arabic country of Saudi Arabia which involved a review of medical records and the collection of data from the Medical Violation Committee showed that the majority of medical errors had occurred in public hospital settings and this pattern is comparable to anecdotal reports about the Libyan Health Service.

Table 2.2 show the number of health care organisations in Libya.

health care organisations	Number
Specialized hospitals	25
Central hospitals	18
General hospitals	21
Rural hospitals	32
Total no. of public hospitals	97
Total beds in public hospitals	20689

Sources : Information & Documentation centre (2009)

Table 2.3 show the size and location of hospitals under the study

N	General Hospital	Bed number
1	A	462
2	B	512
3	C	420

Sources : Information & documentation centre (2009)

It has been shown by general human care resource indicators for the health care system in Libya that for each 10,000 people there are 54 nurses, 6 pharmacists, 3.3 dentists, 23 paramedical staff and 18 physicians (Health Information Centre health statistical report, 2010). The number of health professionals varies from region to region however with, for example, 275.8 nurses per 10,000 people in Ghat to only 19.4 in Misrata, and 28.5 doctors per 10,000 people in Ben Ghazi to 6.3 in Jdbaya (WHO,2007). Such a variation results from the lack of central guidelines to control appointments or appropriate ratios. There are, however, a relatively high number of hospital beds in Libya at a rate of 3.7 hospital beds per 1000, the highest rate per head of population for an Eastern Mediterranean country. This is partly because of the country size, however the rates of occupancy are at a generally low level at approximately 50% and it would appear that there is room for efficiencies in this area to be increased (WHO, 2007). Closer inspection of the figures for hospital beds, however, reveals that many hospitals have been undergoing considerable periods of renovation or construction for up to 8 or 9 years, with some remaining incomplete, e.g. in Derna, Sebha and Misrata. As such, several beds are of poor quality or are not actually being used (MZeiton, 2012).

Prior to the 2011 revolution, the World Health Organisation (2007) reported that the health care system in Libya had a focus on service quantity rather quality. Mention was made of a need to establish a proper system for referral and reliable centres for health care information, both nationally and locally. Furthermore, a need was identified for the

primary, secondary and tertiary levels of the health system in Libya, and their particular functions to have more precise definition. A number of sources have also claimed that the health service suffers from major corruption problems, with many in the Libyan population having little confidence in the personnel, particularly in view of the low service quality in the state funded public sector health service (Salam et al.,2010).

Elkhammas and Singh (2010) indicate due to neglect by the old regime over many years, resulting in poor management and insufficient resourcing of the Libyan healthcare system, the hospitals are of a poor standard and the public tends to be at the receiving end of shortcomings in service quality. Such circumstances could lead to numerous patient safety problems and adverse events.

Hospitals during the revolution were disorganised and suffered from a lack of medical supplies and were not prepared to deal with such a high number of both in and outpatients. Human resourcing issues also became a big problem during the revolution. Most medical supplies to the hospitals came from the central government in Tripoli, so once the conflict was raging, supply chains were broken and reserves became depleted. Electricity and water supplies in the hospitals were also affected because of the closure of the refineries which had supplied the fuel for the power stations and helped run the water system throughout Libya. The fracturing of the health system led to disorganisation in individual hospitals, and they became reliant upon ad hoc donations.

The ambulance service was also affected because most ambulances were employed at the front line. The fighting and the uncontrolled spread of weapons generated a higher level of security risk in hospitals. The conflict also affected the salaries of healthcare workers as money ceased to be distributed from the central bank in Tripoli (Chami et al, 2012). Following the revolution against the regime of Muammar Gaddafi, the health care system and, indeed, the whole political system of Libya changed.

2.3 The Libyan health care system following the revolution

So, currently Libya, under an interim constitution drafted by the National Transitional Council (NTC) is undergoing political reconstruction. On the 7th July 2012, elections were held for a General National Congress (GNC) and on the 8th August the NTC duly handed over power to the newly elected GNC. For the first time, the people of Libya had been able to go to the election boxes and choose their representatives fairly; the GNC consists of 200 representatives elected from across the country. Previously, the country had been under a dictatorship that had no constitution, no elections and with the prohibition of political parties. As such, the new assembly has the responsibility for the formation of a constituent assembly for the drafting of a permanent Libyan constitution to be put forward for a referendum. Now, the country is run by a system of ministries and every ministry has their own agency in every region (Grifa, 2012).

The current system of health care was evaluated by the Ministry of Health through the organisation of a conference that was held in 2012. Expert delegates from the WHO were invited along with 500 Libyan health care professionals. Conference participants summarised some of the issues that needed to be addressed in order to bring about changes to the responsiveness and effectiveness of the Libyan health care workforce. It is considered that patient safety is a sensitive indicator for the evaluation of health care quality and the following factors were considered to have a potential negative impact upon patient safety (El Oakley et al., 2013). Firstly, there is an inconsistent distribution of the health care workforce, with an unjustifiable overstaffing of some facilities and a severe understaffing of others. Secondly, a significant proportion of the workforce, particularly non-medical groups, have low levels of skill or are unqualified to cope with the

responsibilities and tasks that are allocated to them. Thirdly, there is a lack of a transparent and/or credible programme for development of the workforce. Fourthly, many within the current workforce have poor levels of motivation and are demoralised because of the poor working environment, the low levels of pay and the poor prospects for progression of their careers. Fifthly, there is a lack of effective regulation of professionals at all levels of the health care sector and this linked to poor performance and is a major contributory factor to the lack of confidence that the general public has in the medical profession (El Oakely et al., 2013).

Further problems that could lead to negative effects on the patient safety is the lack of availability of certain equipment. Some 'headline' pieces of equipment, such as CAT scans and MRI machines are available in the central hospitals of the major urban centres; however there is often a lack of basic equipment, especially in areas that are more outlying. This can lead to difficulties for both diagnosis and effective treatment. Even where there is equipment in place, a lack of qualified technicians can lead to a failure to conduct repairs and maintenance. Also, despite the vital role played by accurately maintained health information systems and the importance of knowledge transfer within the health systems of other countries, there are inadequate levels of computerisation throughout the public health systems of Libya (Taguri et al., 2008).

There may also be a high level of risk for patient safety within Libya because the health care system is suffering a severe shortage of health care workers. The WHO (2006) has noted a significant lack of medical technicians, trained paramedics and pharmacists. Moreover, there has been a failure to derive the optimum benefit from the skills acquired by Libyan doctors who have pursued expensive postgraduate specialisations abroad. Often, doctors have chosen to work abroad and the importing of replacement foreigners to work

in Libya has been expensive and inefficient. Even though there are huge numbers of medical students and funds spent on scholarships for specialist study abroad, there is still a lack of specialists in Libya in various key areas, such as radiology, anaesthesia and cardiology (WHO, 2006).

A study undertaken by Mullan (2005) for instance, concerned with the emigration of medical doctors from developing countries to more developed ones, reported that from the destination-country census data of 2000, around 585 Libyan physicians had emigrated to the United States (USA), the United Kingdom (UK), France, Australia, Spain, Belgium and Canada. Moreover, the report from Mullan (2005) of the phenomenon reported that a total of 624 doctors from Libya were actually practising in those countries with as many as 63% working in the UK. The exploratory study undertaken by Benamer (2009) has concluded that reform of the Libyan health care system could induce the return of some of those doctors that had moved abroad for predominantly economic and educational reasons, so that they would practice medicine within Libya.

It has also been noted that the standard of nursing care in Libya is inadequate because of the poor standard of education for nurses and this could have a direct effect upon patient safety practices (Mohapatra & Al Shekteria, 2009). The practice of nursing has been reliant upon expatriate staffing; with most qualified nursing staff not actually Libyan. The country is reliant on expensive foreign nurses for almost all midwifery, specialised and quality nursing care. In addition, there is a critical need for the establishment of independent regulatory bodies to regulate and oversee the nursing and medical professions (Mahmud et al., 2013). Generally, there is a lack of clarity over the regulation of doctors and nurses within Libya. Indeed, currently, there are no professional, independent bodies

for the granting or revoking of licenses for doctors and nurses to practice, based upon international standards. As such, the context for patient safety in Libya is one within which an absence of a transparent, objective, robust mechanism for the processing of licenses may mean that the credentials and credibility of the doctors practising in the country go unchecked (WHO, 2007c). The following section covers the effect of the revolution on the patient safety situation in Libya which could become worse and more dangerous for patients.

2.4 The implication of the revolution for patient safety

The violence of the conflict has had a severe impact on numerous population centres across Libya, with effects on daily civilian life generally and, more specifically, severe impacts upon social services and infrastructure related to health. There have been disruptions to the usual supply chains that have led to food shortages and a lack of critically important medical equipment and supplies. The destruction of the physical infrastructure and the cuts to water and electricity supplies has further compounded the everyday difficulties and challenges faced by the Libyan population (WHO, 2011).

Furthermore, at a time of increased caseloads putting pressure upon health facilities and the urgent prioritisation of trauma cases, key medical staff fled and patients with chronic illnesses were not being treated and managed properly. As Fitzgerald et al. (2012) noted, there have been hundreds of deaths in Libya and several thousands of injuries, a number of which resulted in amputation. As a result of the lack of services within Libya, many thousands of patients are in receipt of health care outside of the country; a cost to the Libyan government of millions of dollars every day (WHO, 2012b).

MEDECINE SANS FRONTIERES MSF (2011) reported that a few days after the violent clashes initially broke out on 17 February 2011, a team of medics crossed into the east of Libya from the border with Egypt in order to help at health facilities that were trying to deal with the large amount of people with injuries. In Benghazi, the second city of Libya, much needed supplies and medicines, including antibiotics, anaesthetics and external fixators for the mending of fractures, were donated by MSF. Hospitals and their staff were poorly prepared and equipped to deal with such emergency incidents, with hospitals lacking designated trained teams for emergency. Many patients lost their lives because of the delay in getting emergency services to them and the lack of emergency instruments and staff shortages were exacerbated by the security situation leading to the departure of foreign staff.

Abrahams and Kwiram (2012) reported another implication of the conflict for hospital staff and patients. The forces of Gaddafi were accused of occupying some of the hospitals, particularly in the Western region of Libya, and preventing people from leaving. Terrified and threatened with torture and death, health care staff and patients were detained for a total of 6 weeks. Also, the neutrality of the grounds of hospitals was violated through the deployment of military weapons, such as anti-aircraft weapons, by the forces of Gaddafi, who used hospitals as a shield in the knowledge that NATO aircraft would avoid striking them. Hospitals became very dangerous for patients and healthcare workers during the most intense periods of the conflict.

Post conflict, in an attempt at establishing a modern health care system for Libya, the current Ministry of Health (LMOH,2012) sponsored the National Health Systems Conference (NHSC) in August 2012 in Tripoli. The aim of the NHSC was to review the current status of the health systems, assimilate what the problems were and, wherever there

was a consensus, to produce recommendations for the strengthening of the health system. Challenges faced in the leadership and governance of the health sector, both in the past and currently, were debated by the delegates. A major problem for Libya, especially during the Gaddafi regime, has been a lack of political will amongst decision makers to exercise genuine effort for achieving improvements in health care. Throughout the organisations of government, including the health care sector, corruption has been rampant.

There has been a failure of the private sector to fulfil a potential role in the delivery of health care within Libya and, in the context of the previous corrupt regime; there has been a failure to develop any public-private partnerships. Patient safety has been affected as both public and private sectors were unable to provide good quality health care. The private sector was limited in its capacity to supplement any public sector shortages and there was little or no co-ordination between them (WHO, 2006).

The new Libyan Ministry of Health has been swift in trying to tackle the daunting challenge of reconstruction and by the end of 2011 have asked for the help of the WHO in revitalizing the shattered health system of the country. A critical problem for Libya is the lack of facilities for primary health care which has led to specialist hospitals being ill prepared to cope with queues of people seeking routine or basic health care. In certain areas, there has always been a scarcity of facilities, whilst in others, facilities have been seriously damaged. Also, many of those foreign staff that fled Libya whilst the conflict was raging in 2011 have failed to return, creating a need, especially in rural and remote areas, for more trained nurses and doctors.

The conflict caused serious disruption to Libyan health services during 2011, however access to health services is still problematic, especially for vulnerable sections of the population such as mobile and displaced peoples, those requiring support for psychosocial

or mental health issues, victims of gender based violence, those wounded in the war who require further treatment and rehabilitation. The damage to the infrastructure of the health service and disruption to the provision of essential services has compounded an already challenging systemic environment.

The performance of delivery of services was already hampered by the weak setting of priorities, poor planning, and inadequate processes for budgeting and uneven distribution of social benefits. With only a limited amount of participation of civil society and the private sector, a lack of sufficiently reliable data and institutional instability, there is a need for the civil service to be rationalised (LMOH, 2012).

According to Gabor (2012), who was a representative of the World Health Organisation Regional Office in Libya (New Libya Journal, 2013), a survey had been conducted for a comprehensive, post-Revolution assessment of the preparedness and quality of Libyan health care organisations. To obtain useful results, a large number of primary care centres were included in the assessment which involved a process of identification and visits (1402) for (43) primary health care centre and (86) within the hospital (21 regions). Based upon the survey findings, Dr.Gabor noted that a large proportion of the centres for primary health care were only partially operational and that this was having a negative effect upon primary health service delivery within the country. He also noted the large proportion of hospitals that were affected during the war of liberation and how this had impacted negatively upon the provision of health services to citizens (New Libya Journal, 2013).

A further study conducted by the Health Information Centre of the Ministry of Health was conducted as an assessment into the post-conflict effects upon Libyan hospitals (LMOH, 2012). As well as looking into the effects of the conflict, the study considered the current

state of the infrastructure of the health system, its workforce, the management and organisational structure of the hospitals, the financial resources, the drugs and pharmaceutical sector, and the delivery and utilisation of the service. The study used a post-conflict survey of nearly all of the hospitals within each of the twenty one districts of Libya. In all, 86 hospitals were visited (31 rural hospitals, 20 secondary hospitals, 33 tertiary teaching hospitals, and 2 hospitals considered other hospitals).

Overall, it was found that 16% of the hospitals had been damaged moderately/severely by the conflict. The district that was affected the most was Misrata where it was found that 3 out of the 4 hospitals were damaged severely. Al-Gebal, on the other hand, suffered severe damage to 3 out of the 7 hospitals (43%). It was found that a total of 17 of the central sterilization units (CSU) of the hospitals of Libya had been affected post-conflict (20%). At the district level, Tripoli had the highest number of hospitals that had damage to the CSU, with a total of 4 out of the 12 hospitals. Tripoli was also found to be the district with the highest number of ambulance service departments that had been damaged with a total of 5 of the 12 hospitals' ambulance services in Tripoli damaged severely or moderately (42%). However, all four of the hospitals in Misrata suffered severe damage to their ambulance service departments and this situation put the lives of many Libyan patients at risk who went without the required basic, urgent health care.

In general, there seems to be a low density of physicians in Almarege, Al-Kufra, Al-Wahat and Derna which suggests there is a need for an increase in the number of physicians for these four districts. There is a difference in the density of physicians in other districts from one particular surgical specialty to another; some are low density whilst others seem to be high. In general, the numbers of physicians and support staff are high in Benghazi, Tripoli

and Zwara, while the equivalent numbers in Derna are low. Also, the General National Congress member in charge of the health file, Mr. Omar Khaled al-Obeidi noted that 43 % of the hospitals were not working or non-usable, around 10% were only working partially and the number that were active did not exceed the level of 35% (New Libyan Journal, 2013). This affected the availability of health care for the patients. Many patients were unable to locate the limited services, so there was a sharp reduction in treatment and the swift diagnosis of health problems.

New health needs, then, have been brought about by the conflict (WHO, 2012). Two former ministers of the new Libyan government, Barakat (2012) and Hamroush (2012) reported some of the issues and problems that needed to be considered in the reconstruction of the current health care system, including the poor management of the health sector of Libya established during the regime of Gaddafi. The many problems and challenges faced by the current system of health care were summarised by the ministers who believed that they could be solved if addressed.

First of all, they considered it necessary to improve the leadership of the current system. Many of the existing managers are considered insufficiently skilled or qualified for the managerial positions, with most having been appointed because of their loyalty to the Gaddafi regime. Secondly, the Ministers noted that the people of Libya had a lack of confidence in Libyan health care workers and the quality of care provided in Libyan hospitals. There is a general negative perception of the level of professionalism amongst Libyan healthcare workers and this corresponds with the high numbers of Libyans who seek healthcare abroad, even when available at home. This is a drain on the Libyan budget of 1.5 billion Libyan dinars. The third problem that was noted was the high level of corruption at various levels of the health care system from top to bottom. Fourthly, there is

an absence of application of a quality health care assurance policy with current hospitals working without following appropriate medical policies and protocols. A fifth issue was that there is no system of qualification and licensing to monitor the status of health care workers and, in fact, some nurses and doctors were practising without having proper licenses for the work (Benamer, 2007 & Elhamel,2007).

Such practice could affect patient safety in terms of proper treatment and diagnosis and could increase the medical errors and complications for the patients. The lack of attention paid by the old regime to policy for training staff in professional skills was mentioned by the ministers and they contend that there has been a lack of application of law related to professional ethics. The current Libyan system does not apply the law effectively and fails to put a suitable policy in place. Furthermore, health ministers noted a lack of a sense of care and responsibility amongst health care workers, even within sensitive areas of work, such as intensive care and emergency departments. Rather than a focus on saving the lives of many patients, a focus upon salary and a strike resulted in work areas being left. A further problem that was mentioned was the tendency for many Libyan doctors to live and work abroad even though their services are needed in Libyan hospitals (Libya Herald, 2012).

Furthermore, the security situation has become a new challenge for the current health system as weapons have been spread throughout the country by the old regime. This has led to an increase in the incidence of threats and attacks on hospital staff with some cases of killings due to a number of patients being armed when they arrive at hospitals. This situation is further exacerbated by the absence of police and the activation of trial services. Nowadays, this security issue is considered a huge challenge faced by a number of Libyan hospitals (Siebens & Case, 2012).

Such dramatic change to the political systems of the country, and the ensuing instability, has definitely had a negative effect on the provision of health care services. Even prior to the revolution; the World Health Organisation (2007) suggested that Libya needed to improve its health system to enhance patient safety. This is echoed in reports by (Ajaj and Pansalovic, 2005; WHO 2007 & El Tarqui et al., 2008) that showed that the Libyan health system had poor performance and needed reform with new policies and strategies. Furthermore, in clinical practice, anecdotal evidence suggests that professionals in the Libyan medical workforce are conscious of the growing needs for quality patient services and better health management policies that take into account the environment in which health organisations and professionals function.

Similarly, Elkhammas and Emsallem (2006) argued that as a result of the lack of financial resources, poor training and education for the staff and the poor work environment, Libyan people were losing confidence in public hospitals. Hence, they believed these factors resulted in a notable number of patients seeking health care outside the country. Indeed, seeking medical treatment outside of Libya is becoming much more common. Libya had a tragic patient safety incident in Benzhia city in 1998 when 400 children were infected with the AIDS virus in El-Fatih hospital. The epidemic has been considered the largest infection incident of a nosocomial (hospital-induced) type to be documented in the history of HIV (Yerly et al., 2001).

Five Bulgarian nurses and a Palestinian medical doctor were accused of injecting the children with the AIDS virus by the old regime. The subsequent trials were highly controversial and politicised. Following conviction, the foreign medical staff said they were innocent and that they were forced to make confessions under torture. Both Libyan

and international committees have reviewed the incident, including the foremost world experts on HIV, Luc Montagnier and Colizzi (Krosnar, 2003). They wrote to the Libyan government and the courts on behalf of the foreign staff, putting the blame for the epidemic on poor hospital practices that resulted in a poor state of hygiene. A Libyan committee of experts deemed that the AIDS outbreak in the Al-Fateh Children's hospital was neither due to nosocomial infection nor due to medical instruments being misused and/or reused.

Later, the son of Gaddafi, Saif al-Islam, provided confirmation that Libyan investigators had extracted confessions through the torture of the foreign medical staff and threats to target their families. He also confirmed that some of the children had in fact been infected with HIV prior to the arrival of the foreign medical staff in Libya (Yerly et al., 2001 & Pancevski, 2006). The issue of the outbreak, however, remains a mystery as the post-revolution court services are not fully activated and have not yet passed judgement on the matter.

In taking the issue of safety culture into account, it could be said that there is still a long way to go for developing countries such as Libya to reach a satisfactory level of patient quality service. According to WHO (2007) the quality of health care in Libya was very poor before the revolution. Furthermore delegates from WHO and the Libyan government agreed that the Libyan health care system is weak and does not function well and it was nearly at the point of collapse during the revolution period. They agreed that the current system does not work effectively to provide an acceptable standard of health care services, and therefore they urged and recommended the Libyan health authorities redesign the system with new policies and regulation to build a new health system which provides good quality care with high standards that meet the expectation of Libyan people and their health needs (El Oakley et al., 2013).

Therefore, in light of WHO's and Libyan experts concerns, it is timely for Libyan Health Authorities, to consider reforming their health care systems. WHO (2008) asserts that an important aspect of any such reform would be the development of a new organisational culture which supports a patient-focused, team-oriented, work-force that share clear lines of responsibility with open communication, and a strong partnership between the different levels of care and in so doing, promotes the development of a positive patient safety culture.

Thus, there is an urgent need to investigate the Libyan health care organisations, and one important aspect of such a review is the need to assess the current health practices in relation to patient safety. The need for this study is justified by the fact that the number of Libyan patients that could be unsafe because of lack of professional expertise and individual errors has increased dramatically (Buargub, 2005; Ben Irhuma, 2007; WHO, 2007; WHO, 2007c & El- Bouri, 2009). Yet searches of the literature only identified a few studies conducted in Libya related to patient safety and these were methodologically weak. This suggests that patient safety in Libya is an under-researched area. Therefore, this present study will explore and assess the perceptions of key figures working in hospitals in Libya with regard to the patient safety culture.

2.5 Summary

The general background context in Libya has been provided in this chapter along with an explanation of the situation for the health care system during the Gaddafi regime, at the

time of the conflict and since the revolution. The previous problems that have faced the Libyan health care system are outlined, as well as the current challenges. An overview of the structure of the political system in Libya prior to the revolution is given, and the changes that have happened since. The implications of the revolution upon Libyan hospitals at various points in time are also given, both during the conflict and afterwards towards the end of conflict and following freedom from the Gaddafi regime. Patient safety culture was negatively impacted during the old regime due to the poor management and had also been seriously compromised during the revolution. Patient safety culture still suffers due to the political instability.

Chapter 3: Literature review

3.1 Introduction:

This chapter reviews the literature which relates to patient safety culture, and identifies the different concepts and definitions related to it. It also, describes the characteristics of a positive safety culture and gives an overview of the importance of assessing patient safety culture in hospitals. Furthermore, it elaborates on the main aspects or dimensions that have been used in previous studies to assess the patient safety culture. Moreover, it includes the current patient safety research and considers whether a gap exists in the literature and provides the justification for conducting a study on this topic in Libya.

3.2 Literature review approach

In undertaking the literature review, an integrative approach was adopted that took the four stages of Tranter et al.(2012), whose approach was based on the work of Whitemore and Knafl (2005). These stages moved from:

1. the identification of relevant articles about safety culture in general, in the English language, by the searching of databases using the terms of ‘safety culture’ and ‘patient safety culture’ from, Medline, PUBMed Sci, Google Scholar, online resources at LJMU, LJMU library and British Library resources.
2. The screening of the papers based on whether they directly related to patient safety culture in hospitals.
3. Ensuring they were eligible based on the quality of the research study.
4. Final selection for inclusion in the review, based on whether the articles had focused on the measurement of patient safety culture in hospitals.

Figure 3.1 below, the Prisma flow diagram summarises the stages through which the selection process passed.

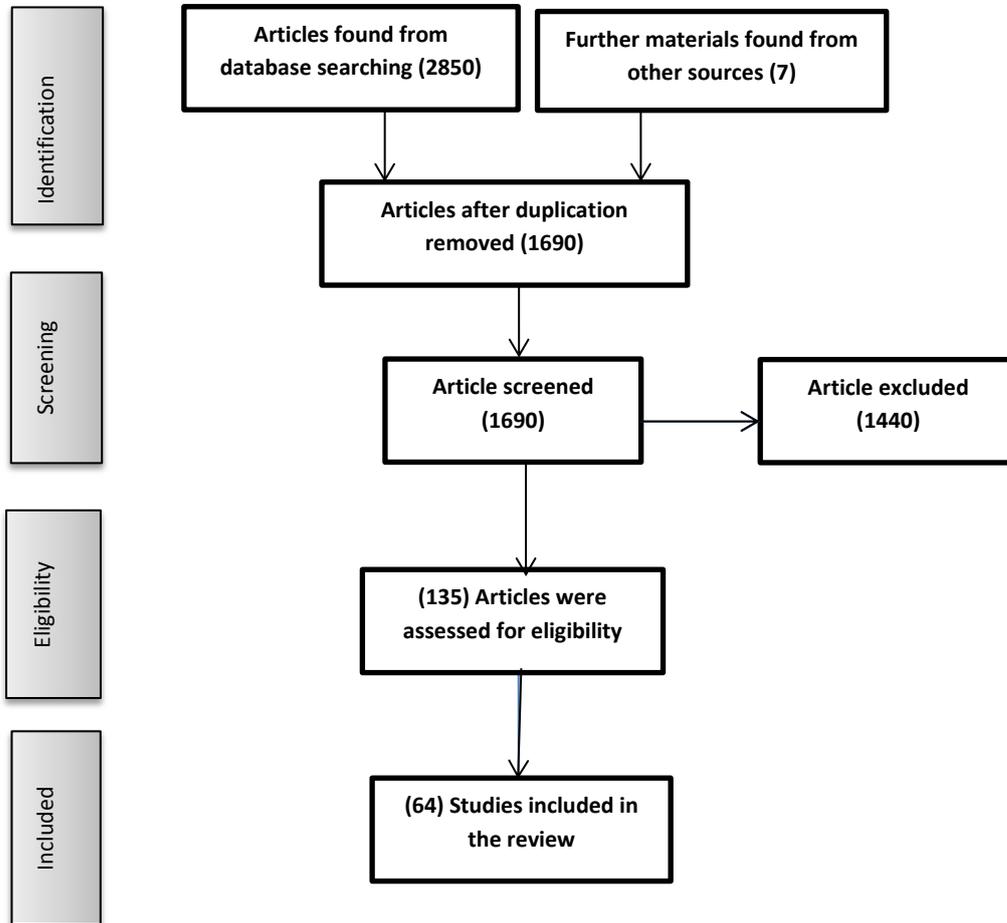


Figure (3.1) Selection of the study literature

Once the articles had been selected for closer scrutiny, i.e. those related to the measurement of patient safety culture and, therefore, more clearly related to the aim of the study, they were evaluated to see that the data collection methods had been rigorous and the degree to which they were relevant. Rigour was evaluated through checking the articles against a range of criteria as shown in Table 3.1

Table 3.1 Aspects which included in quality appraisal tools

Qualitative studies	Quantitative studies
<ul style="list-style-type: none"> • Aim and the context of the study. • Method of the sample. • Collection of the data. • Analysis of the data. • Research reflexivity. • Conclusion. 	<ul style="list-style-type: none"> Aim of the study. Design of the study and sample features. Analysis of the data and Findings. Conclusion.

Following their initial evaluation, the literature review articles were categorised as either having little or no description of the methodology (score of 1), incomplete description of methodology that raised concern over research rigour (score of 2), or having a detailed explanation of the methodology used (score of 3). In terms of checking the degree to which the articles were relevant to the aim of the study and research the articles were classified and scored based upon whether they were about: patient safety generally (score of 1); patient safety in developed countries (score of 2); patient safety in developing countries (score of 3); and patient safety in Arabic countries (score of 4) (Whittemore & Knafl, 2005). The scores of rigour and relevance were added together and, hence, there was a maximum combined score of 7. See Table 3.2

Table 3.2 Critical appraisal of literature adopted from (Whittemore & Knafl, 2005)

Methodological Rigour	Score	Data Relevance
Studies with little methodological Rigour.	1	Secondary Focus on patient safety.
Studies with incomplete method information and/or some concerns about rigour.	2	Primary focus on studies in developed countries.
Studies with detailed methodological information .	3	Studies focus on patient safety in developing countries.
	4	Studies focus on patient safety in Arab countries.

In the analysis of the articles selected for the literature review, the method of constant comparison put forward by Whittemore and Knafl (2005) was used to generate categories and make distinctions between themes and variations and relationships.

Following dynamic steps of trial and error, themes were chosen that were appropriately labelled, that were discrete and precise, and that were sufficiently robust as to stand up to closer scrutiny. Once any anomalies were identified, and agreement made as to how to proceed, the researcher classified the categories, validated these with the supervisory research team, and presented the final themes separately and clearly (Aveyard, 2007).

Based on the search of the literature related to safety culture and patient safety culture studies, the study extracted (64) main themes are widely used for the investigation of patient safety culture. These were mainly related to the themes of: reporting system; non-punitive response to errors; management support to safety issue; organisational learning; communication; teamwork; staffing; and handover. The structure of the literature review chapter will mainly revolve around these themes. In addition to empirical studies that were identified from the integrative review, some discussion papers have been referred to where they make a valuable contribution to the debate.

3.3 Safety culture review:

3.3.1 The concept of safety culture

In the analysis of major accidents in industry, there has been a noticeable shift in research and regulations from a focus on individual factors to one that focuses on organisational factors such as safety culture. The concept of safety culture, which is sometimes referred

to as safety climate, started to receive more attention following the nuclear power plant disaster in Chernobyl in 1986. Essentially, safety culture is a reflection of the attitudes and values of managers and workers towards the management of risk and safety (Lardner, 2003; Sorra & Nieva, 2004).

Halligan and Zecevic (2011) undertook a review of safety culture literature from 1980 to 2009. They found a disagreement amongst researchers over the definition of safety culture, and whether or not it is intrinsically different from the concept of safety climate. They found the most common definition of safety culture that was introduced by The Advisory Committee for Safety in Nuclear Installations, and also which was adopted by the UK Health and Safety Commission (HSC) defined as: *“The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management.”* (HSC, 1993, p .23).

Whilst Mearns et al. (1997, p.28) defined safety climate as the *“workforce’s attitudes and perceptions at a given place and time. It is a snapshot of the state of safety providing an indicator of the underlying safety culture of an organisation”*. Both the definitions of Mearns et al. (1997) and HSC (1993) showed that organisational commitment toward safety is reflected within the behaviour of staff; however the HSC definition seems to be more comprehensive in defining safety culture as an ongoing process.

For further clarification between the terms ‘safety climate’ and ‘safety culture’, Cooper (2000) proposed a useful framework that identified three aspects to safety culture as follows:

- Psychological aspects (often known as ‘safety climate’),

- Behavioural (or ‘organisational’) aspects,
- Situational (or ‘corporate’) aspects.

With regard to safety climate or the psychological aspects of safety culture, the feelings that people have about systems that are in place for safety and safety management are investigated. As such, the values, attitudes and beliefs of both groups and individuals can be encompassed within a study, regardless of their status within a workplace. This ‘safety climate’ can be measured, subjectively, through the use of safety climate questionnaires that aim to uncover the attitudes and perceptions of the workforce at a given point in time.

On the other hand, behavioural or ‘organisational’ aspects of safety culture relate to the activities undertaken within an organisation with regard to safety, and the behaviours and actions of the employees involved. The third aspect, related to ‘corporate’ or situational concepts, describes more tangible properties of an organisation, such as its policies and procedures, its operational safety management, its control and workflow systems, and the flows of communication between the staff and the various workplace levels (Cooper, 2000) see table 3.3.

Table 3.3 Summary of the similarities and differences between the concepts of safety climate and safety culture.

Safety climate	Safety culture
<ul style="list-style-type: none"> • It gives a narrow understanding of the state of safety. • It measures the state of safety at a certain time. • It can be assessed through investigation of workers’ psychological states, such as attitudes, values and perceptions of safety (How people feel about safety). • It can be measured by using quantitative methods (e.g. questionnaire). • It is considered as an indicator of patient safety culture. 	<ul style="list-style-type: none"> • It gives a broader understanding of the state of safety. • It measures the state of safety for a long period of time. • It can be assessed through examination of the behaviour and practice of workers with regard to safety (How people do things in the workplace). • It needs to be fully understood by deploying qualitative methods (e.g. interview). • It reflects the whole safety culture practice in an organisation.

Based on the aforementioned framework of safety concepts of Cooper (2000), and the work on health care governance by McSherry and Haddock (1999) and McSherry (2004), governance can be related to safety culture, particularly the behavioural and situational (or ‘corporate’) aspects. These aspects of safety culture reflect the systems and processes that are in place in an organisation, such as risk management systems and clinical audits, to ensure that events or incidents are reported, assessed and evaluated thoroughly and, in doing so; actions can be taken to prevent their reoccurrence.

This current study uses the term safety culture as it is a much broader concept that covers the assessment of the thoughts and attitudes of staff about patient safety as well as the effect of staff behaviour and practice on patient safety (Zhang et al., 2002). As such, this broader concept is useful for a study to assess patient safety culture in hospitals in developing countries, particularly in the Libyan context, where there are major political and social obstacles. The complexity and sensitivity of the issue of patient safety practice in such demanding developing country circumstances calls for a more comprehensive exploration of the determinants of patient safety. Safety culture is defined simply by the Confederation of British Industry (CBI, 1991, p.67) as “the way we do things around here”. Lee (1998) believes that safety culture is not only a reflection of behaviour; it also considers the attitude that controls such behaviour. Therefore, Lee (1998, p.219) extends the CBI definition and suggests that it should include ‘the way we look at things and the way we do things around here’.

Safety culture was considered by Lardner (2003) to have an influence upon the view of the world of individuals and groups of workers. That is, it influences what is considered to be important and how new information is interpreted. Also, Lardner considered safety culture to be relatively stable over time. In a sense, safety culture can be likened to the personality

of the organisation in that it endures and, in being passed on to new members, it transcends members of the organisation that share the culture at any particular time. Since the revolution, there is a willingness to change the patient safety culture in Libyan hospitals as part of a broader attempt to improve the quality of healthcare in line with the demands of the public.

Zhang et al. (2002, p.2) conducted a systemic review study in an attempt to understand the concept of safety culture. Their review identified 107 published papers and they concluded that 30 articles were specifically related to safety culture and safety climate and that, despite the use of various definitions of safety culture, the majority of them have a number of features in common and these are as follows:-

- As a concept, safety culture is defined at the group level or higher and it refers to values that are shared amongst all the group or members of the organisation.
- Formal safety issues in an organisation are the concern of safety culture. Safety culture is closely related, though not restricted, to managerial and supervisory systems.
- With an emphasis upon the contribution that is made from everyone at all levels of an organisation, safety culture has an impact upon the behaviour in work of the members.
- The safety culture of an organisation is usually reflected in the contingency between its performance in relation to safety and the reward system.
- The safety culture of an organisation is reflected in the willingness for learning from incidents, accidents and errors and the consequent willingness to develop the practices of the organisation.

- The safety culture of an organisation is relatively stable, resistant to change and enduring.

However, following the political changes in Libya, the new government seeks to build a new healthcare system that provides a good quality service for the people and that ensures their basic health care needs are met with high operational standards. Moreover, Reason (1997) identified the main elements of safety culture, in providing a description of how it could be engineered. For Reason, safety culture was conceptualised as the engine that could drive an organisation to the goal of maximum operational safety. For an organisation to have an effective safety culture, Reason proposed that:

- there is a safety information system for the collection, analysis and dissemination of information related to incidents and near misses, as well as information gathered from proactive checks that are regularly undertaken on the system;
- it has a culture wherein people are prepared for the reporting of errors, incidences and violations;
- there is a culture of trust wherein people are encouraged, and even rewarded, for the provision of essential information related to safety, though the line between acceptable and unacceptable behaviour is clearly demarcated;
- there is flexibility, so that there is the ability to reconfigure the structure of the organisation to face a task environment that is dynamic and demanding
- there is willingness and the competence within the organisation to reach the correct conclusions from the safety system, and a willingness to implement reform when necessary.

By the means of a systematic review, Zhang et al. (2002) made a distinction between the concepts of safety culture and safety climate and described their common features. The work of Reason (1997), on the other hand, analysed case studies in order to offer principles

and practical considerations that could work together to enhance organisational safety culture practice. Both publications had an emphasis upon the significance of safety culture and safety climate; however, Zhang et al. (2002) attempted to clarify classifications in a descriptive, academic style, whilst highlighting some of the differences in definition amongst researchers. Reason's work, on the other hand, described those elements that helped organisations become effective in the area of safety culture and how successful approaches could be implemented.

As such, Reason's work was intended to have more direct practical relevance to aid decision makers to enhance practice in their organisations. Zhang et al. (2002) outlined where there was a lot of disagreement over definitions and, indeed, both publications have been helpful. However, the work of Reason is more useful in that it proposes the components of a successful system. Both of the works are useful if there is commitment from the high level of management of health care system to adopt the insights, principles and concepts offered within their policies and decisions. The concepts are applicable to the Libyan health system. However as Libya goes through a period of reform after the revolution, time and further awareness of safety culture is needed for the system to overcome the numerous social and cultural constraints among health care workers.

Further clarification of safety culture concepts were introduced by Westrum (1993, 2004) who produced a theory of levels of organisational maturity, based on case studies, which provides a key way of understanding organisational cultures. These levels, namely pathological, bureaucratic and generative, are classifications of how well developed safety culture is within an organisation and how safety-related information and issues are handled. Kirk et al. (2007) describe the theory in which a pathological culture is where an

organisation is at its most immature stage, when information is hidden, failures are covered up and new ideas are actively crushed. Sharing and learning from others is actively discouraged in such an organisation.

A more mature organisation is one within which systems have been developed for the handling of the flow of information. Information may be collected though then ignored in a bureaucratic organisation, with new ideas seen as potentially the source of problems and sharing and learning are tolerated though not actively encouraged throughout the organisation.

In terms of cultural maturity, the generative organisation represents the most advanced state, with information being more actively sought and, indeed, certain staff members are specifically trained in its collection. Within such a generative culture, new ideas are welcomed and failings prompt inquiry rather than blame or attempts to cover-up (Kirk et al., 2007).

Furthermore, Westrum's work was extended to a model with five levels and adapted by Hudson (2001) and Parker (2009) with a particular respect to safety culture assessment. The five-level model was used for the development of a safety culture assessment tool that is now widely used within the oil and gas industry. Organisational safety culture and its features are described in the model, with the five levels outlined as follows. Level one, the Pathological level, is where an organisation does not spend any time on the issues of risk management and safety. Level two, the Reactive level, is that in which an organisation does take risk seriously and does something every time an incident occurs. Level three, the Calculative level, is where an organisation has a system in place to manage all likely risks.

Level four, the Proactive level, is where an organisation is always on the alert, thinking of risks. Level five, the Generative level, is where an organisation has a risk management system as an integral part of everything it does.

This safety culture framework of Parker and Hudson was first used in health care organisations by Kirk et al. (2006) as a theoretical basis for their study to help health care staff to understand the concept of safety culture within primary health care organisations. Furthermore, Barker (2009) used it in another patient safety culture framework used to assess NHS organisations. They both adopted the model as it was based on extended empirical research and they thought that taking the same approach, and adopting a methodology that had been successful in a high-risk industry, might also be beneficial for assessment of safety culture in a healthcare organisation. Also, they considered that it would help the staff of NHS organisations to understand safety culture and increase their awareness about subculture related to safety culture practice.

Another conceptual framework for the understanding of safety culture was proposed by Guldenmund (2000, p.243) in which safety culture is defined as: those aspects of the organisational culture which will impact on attitudes and behaviour related to increasing or decreasing risk. He proposed a model to explain safety culture within which there are three levels to safety culture similar to the layers of an onion. The core is made up of 'basic assumptions' that are implicit, unconscious, taken for granted and shared throughout the whole of the organisation. These assumptions are general, rather than being specific to safety. If, for example, written rules within an organisation are regarded as critical, then the safety rules will be considered as critical as well. The next layer is labelled by Guldenmund (2000) as 'espoused values' which are, in practice, the attitudes of the members of an organisation, and such attitudes are those that are specific to safety rather

than general organisational factors. He gives four broad groupings of attitudes, namely: hardware (e.g. plant design); management systems (e.g. safety systems); people (e.g. senior management) and behaviour (e.g. risk taking). The outer layer of safety culture refers to artefacts or outward expressions such as: equipment (e.g. personal protective equipment); physical signs (e.g. publically posting the number of days since occurrence of last accident); behaviours (e.g. the using of appropriate safety equipment or the conducting of safety tours by managers) and safety performance (the number of incidents).

These two conceptual frameworks were considered useful for gaining an understanding of the assessment of safety culture in general. The five level frameworks of Parker and Hudson (2001) helped to clarify how the current state of safety culture in a hospital could be examined, in giving a snapshot to help in describing how safety issues were prioritised and handled. However, safety culture is complex and affected by many issues. Guldenmund (2000) for example, considered that safety culture was, in essence, subjective and his framework helped in stressing the importance of gaining a deeper, qualitative understanding of the issues at work and the necessity of conducting qualitative work to establish such understanding. However, based on the literature review specific to patient safety culture in hospitals, the conceptual framework that underpins the current study included further safety culture aspects or dimensions from the literature that have been used widely to assess the perception of patient safety culture among health care workers in hospitals across the world (Singer et al., 2003; Nieva and Sorra 2004; Colla et al., 2005 & Pronovost et al., 2006a).

3.3.2 Patient safety background:

Currently, hospitals in developed countries such as the USA have adopted a number of high-tech interventions, such as electronic medical records, medication bar coding and computerised physician order entry systems (Plus Report, 2009). In addition, health care providers in the USA have followed checklists for patient handovers in order to avoid medical errors. They have also produced other guidelines for common procedures, such as central line placement with the aim of avoiding hospital infections. Despite these improvements, the problem of preventable medical errors continues to plague American hospitals (Plus Report, 2009).

Similarly, many hospitals in other developed countries are committed to improving patient safety. Vincent et al. (1999) and Baker et al. (2004) conducted retrospective research studies using random samples taken from medical records in hospitals in two developed countries, namely Canada and the UK. Both of these studies identified that a considerable number of adverse events had happened to patients admitted to the hospitals, with percentages of 7.5% and 10% for the Canadian and the UK hospitals, respectively. They reported these adverse events had the potential to have been prevented, had led to a moderate or greater degree of impairment to the patients, and had cost the respective National Health Services huge amounts of money.

Both studies had similar findings and revealed the problem of medical errors in their hospitals. However, some limitations were identified in their research methodologies which may have had an effect on the generalisability of their research from the use of only a small sample of hospitals. Also, the findings may not have reflected the full reality of adverse problem events in the hospitals as the sample was taken from a limited number of

departmental records, and other departments may have had more incidences of adverse events than those departments that were chosen for the study.

Further studies, such as the work undertaken by de Vries et al. (2008) who carried out a systematic literature review related to adverse events in hospitals in various locations. Their research used a retrospective record review technique to provide a review of eight selected studies, from the USA, Australia, UK, New Zealand and Canada, that involved a total of 74,485 patient records. First of all, trained nurses screened the records for those that recorded certain criteria, such as adverse drug reactions, hospital-acquired infections and unplanned readmissions. Following this initial screening, a physician reviewed the records to determine if an adverse event had been noted. The study recorded a 9.2% overall median incidence of adverse hospital events and there was a 43.5% median for preventability. The study also found that almost one out of every ten patients had been affected by adverse events during their admission to hospital.

Other developed countries, experience similar rates of adverse events in primary and secondary care settings. An early retrospective review of hospital medical records study was conducted by Wilson et al. (1995) in 28 hospitals in Australia by reviewing 1400 admissions medical records. The study showed that 16.6% of these admissions were connected with adverse events and they lead to 13.7% permanent disability and 4.9 % deaths for patients and 51 % of these events were found to be preventable.

Moreover, McKay et al. (2009) reviewed 191 medical reports by using significant event analysis (SEA) from general practitioners in the West of Scotland and they found that 48 described patient harm (25.1%). From the reports that were reviewed in their study, trained peers judged them to be either 'satisfactory' or 'unsatisfactory' event analyses. Such

verification and quality assurance of the SEA has not been conducted in similar studies. However, the study had a number of limitations. Firstly, it could not be easily generalised to other contexts. Secondly, there was selection and recall bias, which may have had an effect upon the interpretation of the data that was collected. Also, the study lacked depth as there was not a wider selection of samples.

The two studies of Wilson et al. (1995) and McKay et al. (2009) examined the incidence of adverse events among patients by reviewing samples of patient medical records at different levels of health care system, i.e. secondary (hospitals) and primary care (GPs), respectively. Their findings showed that patients in the context of both of the two different levels of health care had experience with adverse events. It is clear from their findings that patient safety could be at risk at different levels of health care and in different work areas. Such negative research findings, related to the patient safety situation at different levels within health care systems, reveal the importance of reviewing and improving patient safety culture in health care settings.

Empirical research conducted by both Pronovost et al. (2006b) and Mardon et al. (2010) provided scientific evidence of the link between the maintenance and promotion of positive patient safety culture in hospitals and the reduction of the incidence of adverse events to patients. The prospective cohort study of Pronovost et al. (2006b) was conducted in the ICUs of 5 hospitals in Michigan, in order to monitor and evaluate the application of patient safety intervention practices, and the effect of these interventions on specific safety measures to reduce the threat of catheter-related bloodstream infection. Their study showed a significant decrease in infection rates in hospital ICUs of up to 60% following the interventions. However, the researchers acknowledge that staff under-reporting could

be a confounding factor that interferes with the reduction in the infection rate. Also, the generalisation of their findings would be better if different samples were taken from a variety of health care staff from different hospital departments, thereby enabling conclusions to be drawn about perceptions of safety culture from a broader range of contexts.

The exploratory study of Mardon et al. (2010), on the other hand, examined the relationships between patient safety culture variables and adverse clinical events in 179 hospitals in USA. Whilst their research involved a large sample and agreed with the findings of Pronovost et al. (2006b) that a more positive patient safety culture is associated with fewer adverse events in hospitals, it did not directly measure the effect on patient safety outcome.

A more recent study conducted in Israel by Kagan and Barnoy (2013) used a questionnaire with a convenience sample of 247 Israeli registered nurses to examine the relationship between the patient safety culture and the incidence of medical errors and the rate that they were reported by the nurses. The questionnaire provided an examination of the incidence of mistakes with medication within clinical practice and the rate, at which these errors were reported, as well as the perceptions and views of the workplace safety culture held by the nurses. Whilst it only focussed upon the perceptions of nurses, their research did provide useful strong behavioural evidence that safety culture within the hospital influenced the degree to which they were ready and willing to report their errors.

There was less strong evidence between the positive safety culture and actual improvements in patient safety outcome in health care organisations, however, amongst the findings of a systemic review conducted by the Health Foundation (2011). This lack of clear evidence of the link between positive patient safety culture and good patient safety

outcomes is maybe due to the complexity of patient safety within a medical setting and the broad range of factors that have a bearing on it.

From the opinion of Jha (2008), the various factors that lead to poor patient safety outcomes in practice in a medical context can be listed as follows. Firstly, managers and healthcare workers are often more interested in individual accountability, rather than the development of a systems based approach to patient safety that can address latent factors that may be failing to prevent the occurrence of an error. Secondly, as clinicians frequently encounter numerous errors in the course of their clinical practice, there is often the impression that it is inevitable that there will be such problems. Thirdly, as there is typically a hierarchical structure to organisations related to medical care, the reporting of medical errors can often be viewed as a personal attack rather than being viewed as an opportunity to improve. Finally, within healthcare there has been little emphasis upon the development of an environment that is a learning one for workers at the forefront.

Similarly, Leape (2009) took a holistic view of health care systems in arguing that there are a number of factors responsible for most medical errors that need to be addressed. Firstly, he argued that the organisational environment needed to be transformed from an atmosphere of secrecy to transparency. Secondly, Leape argued that no organisations ought to be using punishment as a way to solve their medical errors and, thirdly, that the management of organisations needed to shift from a focus on personal performance to a focus on inter-professional teamwork. Finally, he felt that the analysis of the causes required the use of a new perspective, with the consideration of system failure taking centre stage rather than a focus on the errors of individuals.

Meanwhile, the viewpoint of Reason (1995) focused on the threat of staff fallibility. In the context of a complex and hazardous system, such as a health care system, he considered

that the staff could cause a more significant threat to patient safety than technical failures. His argument was that the management of human risk will never be 100% effective, and whilst it can be moderated with the assistance of technology, human fallibility cannot be eliminated entirely.

Based on the arguments of Reason (1995), Jha (2008) and Leape (2009), it is clear that a positive management approach to safety culture across an entire health care system, that places patient safety high on the agenda, guides the behaviour of health care workers towards safer levels of care (Neiva & Sorra, 2003). Good examples of safety culture can be found in other fields, such as in aviation and nuclear power, where the perception of, and behaviour towards, safety measures are much better managed than in health care organisations. In research of the management of the railways, Clarke (1999) suggested that the key element in reducing safety problems in any organisation is that both managers and workers should share the same perceptions and commitment towards safety issues. His study concluded that differences in intergroup perceptions about safety could have a negative influence upon organisational commitment towards the issue of safety; staff need to know that managers are concerned about safety issues and support their efforts to improve, and managers ought to show a willingness to take the suggestions of workers seriously and to discuss these with their staff to help prevent the recurrence of errors (Clarke, 1999).

Taking a more particular look at the health care system in the context of Libya, Buargub (2005) conducted a study that used a questionnaire to assess the source of knowledge of nurses (N=60), patient isolation practice, and hospital infection control measures in the dialysis unit of Tripoli hospital in 2005. The study found that nurses demonstrated poor adherence to the standard infection control measures. The other significant problem found in the study was the irregular supply of some of the essential resources needed for the unit.

Furthermore, the study concluded that nurses needed to pay more attention to the application of simple infection control measures (Buargub,2005). It provided a considerable amount of information regarding preventative measures in Libyan hospitals, a major topic for the country. There were some limitations to the study; however, as the sample chosen was small and it came from only one health care professional group and, with such a lack of representativeness, the study reliability and validity were questionable. A more comprehensive picture of health care practice could have been gained if various members of staff were involved from across the hospital.

Sawalem et al. (2009) highlighted another aspect that could have an impact upon patient safety in Libyan hospitals; the issue of poor medical waste disposal. They conducted a study in 3 hospitals in the northwest of Libya to examine current medical waste disposal practice. The study found that neither guidelines nor policies had been adopted for medical waste disposal in Libyan hospitals. It was discovered that, typically, the hospital waste in the Libyan hospitals tended to be handled by poorly educated workers, who were performing their duties without having received proper training or guidance and, indeed, without having been supplied with suitable protective clothing. Indeed, it was noted that all the hospitals surveyed were lacking in appropriate systems for the classification, segregation and treatment of waste.

It is extremely worrying to note, from their study, that hospital waste, including medical waste, was being mixed with everyday domestic waste, and its collection, transportation and disposal was, in general, much the same as the solid waste of the municipalities. So, the weak safety culture and poorly managed Libyan hospital systems could potentially pose threats to the surrounding environment and the wider population, as well as impacting

upon patient safety through the increased likeliness of contamination and the spread of infection in the hospitals.

Furthermore, El-Bouri (2009) examined which type of infection of patients occurred in hospitals specialising in dealing with patients that had been burnt. The study found 59 of these infections were caused by caused by staphylococci with special reference to Methicillin-Resistant Staphylococcus Aureus (MRSA). The research highlighted that Libyan patients could be at risk of hospital infection whilst they receive health care because the current hospitals have a lack of reliable microbiological laboratory services and inadequate infrastructure in the medical laboratories which investigate patients with suspected Hospital-acquired infections.

Another aspect of hospital research in Libya was that related to anaesthetic procedures in the work undertaken by Ajaj and Pansalovic (2005) during their research involved the review of 16,313 anaesthetic procedures that were performed in Libyan hospitals, and it identified the mortality rate among patients who had undergone operations to be 1 death per 1,925 operations. From their work, they suggested that there was a lack of adequate preparation and assessment of the patient which contributed to anaesthesia-related deaths among Libyan patients. Ajaj and Pansalovic also concluded that although the use of anaesthesia in Libya appears to be safer than ever, things still go wrong and cause significant harm to patients.

However, these findings do not reflect the full reality of the anaesthesia safety situation in Libya. There are many cultural and managerial obstacles that inhibit the collection of accurate and reliable data from Libyan healthcare workers because no policy exists to

encourage the reporting of errors and the punitive cultural approach to errors that predominates in the Libyan hospital environment. Moreover, Elkhammas and Emsallem (2006) stressed the need for improvement to the Libyan health care system and concluded that the working environment for physicians needed to be improved and that this could play a part in helping to rebuild trust between patients and their health care system. From the albeit limited research that is available, a picture is emerging that patient safety in Libya is compromised. However, the work to date is small scale focus on single specialist areas or on individual hospitals.

The following section will give an overview of the importance of patient safety culture assessment in health care organisations.

3.3.3 Assessment of patient safety culture

Safety culture has become a major issue for those healthcare organisations keen on improving patient safety (Kennedy, 2001). The assessment of patient safety culture in health care organisation is considered to be a critical first step for improving the quality of health care (Kohn et al., 2000). This starts with measures such as a data-based assessment of the current safety culture and surveys of staff and managers on perceptions of the commitment to safety issues (Clarke, 1999). In 2000 the Institute of Medicine (IOM) showed that investment in health care without a commitment to a positive safety culture is not enough to reduce medical errors (Kohn et al., 2000). This view was supported by Shostek (2007) who articulated that a culture of safety is necessary before other patient safety practices can be introduced successfully. In other words, redesigning hospitals structures, clinical guidelines and information technology are not sufficient to achieve safe

systems and the culture as well as the infrastructure needs to be addressed (Smits et al, 2008).

Cooper (2002) surmised that the purpose of assessing the safety culture in organisations is to reduce accidents and injury rates and to ensure that safety issues are given adequate attention and commitment. Whereas, Nieva and Sorra (2004) and Colla et al. (2005) looked at the assessment of patient safety as a diagnostic tool for safety practice in an organisation. Furthermore, assessment can increase staff awareness of safety issues and help in the identification of areas of strength and weakness so that managers can act accordingly to improve safety, evaluate their interventions, and ultimately use practice as a benchmark within a particular hospital or in comparison to other hospitals.

Whilst Flin et al. (2006) accept this position they also highlight the importance of having a reliable and valid questionnaire to ensure an accurate assessment that identifies weaknesses in the area of patient safety in an organisation, so that managers can make the right interventions. However, Guldenmund (2000) warns that questionnaires cannot reach the core issues related to safety culture within an organisation unless they are combined with another assessment instrument.

For example, Pronovost et al. (2006a) reviewed feedback from 500 health care staff and managers of hospitals about the reliability of safety attitude questionnaires and concluded that, in order to increase our knowledge of measuring patient safety culture, we need to understand the source of variation in cultures between health care workers and their work areas. They believed that unreliable safety culture assessments could lead to bias and misleading results that could cause managers to make incorrect interventions, divert limited resources and even reward inappropriate behaviours. So, in the Libyan context,

there is a need to assess the current state of the patient safety culture in hospitals with a valid instrument, involving different professional health care groups with different perspectives. As such a comprehensive picture can be gained that reveals the strengths and weaknesses of patient safety culture that enables the health manager to act accordingly

A variety of questionnaires have been developed in order to measure the dimensions of safety culture within healthcare settings. (Singer et al., 2003; Nieva & Sorra, 2004; Weingart et al., 2004 & Sexton et al., 2006). Most questionnaires measure similar dimensions that could have an effect upon patient safety, and are designed to measure the perception and attitude of health care professionals and managers regarding patient safety culture in their work areas.

In addition, questionnaires included the main aspects of patient safety culture, as identified in the literature, that need to be considered when assessing the safety culture in the health organisations. These aspects are mainly related to support of leadership and management for the patient safety issues, error reporting systems, and non-punitive response to errors, organisational learning and feedback to errors, communication, teamwork, and handover. The following section will give further discussion in detail about the effects of each of these dimensions on patient safety.

3.4. Factors affecting patient safety culture

This section will address the main dimensions that have an impact on patient safety culture practice in hospitals.

3.4.1 Leadership and management support for safety issues

Leadership and hospital management are considered patient safety dimensions that have an important role in increasing the patient safety culture within health organisations. The National Quality Forum (NQF, 2006) argues that for the successful development of a culture of safety in an organisation, the engagement of senior leaders is critical. Through the design of strategies and the building of a structure that acts as a guide to processes and outcomes for safety, engaged leaders can drive forward the culture of an organisation (Yates et al., 2005).

A study conducted by Blake et al. (2006) in Georgia, USA set out to identify facilitators and barriers to the implementation of the 10 National Quality Forum medication processes that are identified as good practice and to explore the culture of safety practices in 147 hospitals. The study used semi-structured interviews of 2 hospital groups: adopters and non-adopters of safe medication practices. In-depth interviews with hospital administrators were conducted to identify facilitators and barriers to the implementation of programs that support the NQF safety practices. The study found that leadership was one of the most significant facilitators in the establishment and promotion of a safety culture. Wong et al. (2013) conducted a systematic review of 20 studies in order to investigate the relationship between the practice of leadership of nurses and patient safety outcomes. They identified a positive relationship between the performance of the leaders of nurses and improved patient safety outcomes, such as a fall in the rate of patient mortality, and reductions in the numbers of medical errors and hospital acquired infections. Furthermore, a study by Katz-Navon et al. (2005) showed that fewer errors were experienced in hospital units when safety was a high managerial priority. In addition, a study undertaken in the U.K. showed that there was a link between the perceptions of staff on the effectiveness of senior

management leadership with better ratings for clinical governance and a lowering of rates of complaints from patients (Shipton et al., 2008).

Another piece of randomised research conducted by Thomas et al. (2005), examined the role of Executive Walk Rounds' (EWRs) and their effect on patient safety culture. Within their study, EWRs were conducted at each of 23 clinical units in a tertiary care teaching hospital by one of six hospital executives every four weeks for a total of three visits. Executive Walk Rounds were shown to have a significant influence upon the safety culture amongst nurses who participated in the EWR sessions. Their findings demonstrate the importance of the presence of effective leaders amongst the hospital staff to enhance patient safety practice, rather than solely office-based, distant managers. Although only a limited amount of research has been conducted on patient safety in the Arabic health context, two studies have explored the importance of leadership and management in support for patient safety, i.e. the quantitative research undertaken by Alahmadi (2010) and El-Jardali et al. (2010). They both used the same questionnaire as employed in this current study, to examine the perceptions of health care workers towards patient safety culture in Saudi Arabia and Lebanon, respectively. Both studies revealed that health care workers had positive perceptions of the degree of support that their leadership and hospital management had for patient safety in their work areas. The studies concluded that a positive patient safety culture does not exist unless the hospital management are committed to ensuring patient safety in their hospital.

It concluded that effective leadership is a very important factor in improving safety culture through increased levels of staff communication and openness on safety issues. Good leadership can also help create a hospital atmosphere that is free from a fear of blame and

punishment and can, hence, encourage staff to learn from their safety failures. From the review of two studies that focused on the dimensions of hospital management support for patient safety, it is clear that leaders determine the degree of commitment to safety issues in a hospital. It is also evident that leadership and hospital management can influence the view of staff towards the importance of safety in their work areas.

However, there were limitations to the study's sampling methods that could lead to bias because it used a random sample with study populations that had different characteristics and professional backgrounds. The study samples would have been more representative if it had used stratified sampling techniques that ensured that staff from different backgrounds and different work areas was involved. Furthermore, these studies were adopted one a purely quantitative research approach which would not allow the understanding of such a complex topic of patient safety as reported by others researchers (Nivea & Sorra, 2004). Thus the studies would have been improved by using comprehensive more research approaches and data collection instruments. Nevertheless, it can be noted from these, and previous studies that the support hospital management support is an imperative factor to hospitals to promote their positive safety culture practice and reduce patient safety incidences. The next section will elaborate another two patient safety culture dimensions which are reporting errors and non-punitive response to errors and their effect on patient safety culture practice.

3.4.2 A system for reporting errors and non-punitive response and blame free environment.

Reporting errors and non-punitive responses to errors are other dimensions that are useful for measuring patient safety culture in hospitals. The Institute of Medicine (IOM), in the

USA, states that hospitals could increase their accountability and reduce malpractice for patients through adopting a mandatory policy for reporting errors (Kohn et al., 2000). Leape (2002) believes that reporting errors and disseminating their causes can improve safety practice in health care organisations. A system needs to be in place to report errors, and audit these more carefully, so that there is an opportunity for greater learning from such errors (Carroll & Edmondson, 2002).

The World Health Organisation (2005) stated that effective reporting within a hospital or healthcare organisation by the nurse, doctor or other provider can be a solution to numerous problems if it is also reported system-wide and to a broader audience, either regionally or nationally. For some, there is the belief that an effective reporting system is central to safe practice and is a measure of progress towards the achievement of a safety culture within a hospital or any other type of healthcare organisation. At the very least, reporting can help in the identification of risks and hazards and provide information as to where the system appears to be breaking down. This can then assist in the targeting of efforts towards improvement and changing of systems so that there is a reduction in the likelihood that future patients would be injured.

This view was supported by Leape and Fromson (2006) who articulated that events reporting systems can help health care organisations to monitor the staff's performance in order to correct any shortcoming. If an event reporting system was adopted at the national level by the Ministry of Health in Libya, it could encourage health care workers to report their errors. However, in order for this to be the case, it would need to be applied to all levels of the national health service, with confidentiality, appropriate data protection

policies, and attention to the analysis of incidents for the sake of improving the health care service rather than an apportioning of blame.

A quantitative study carried out by Cooke et al. (2007) used a survey with 125 different health care professionals at a major academic cancer centre in Canada. The study had the aim of measuring the perceptions that staff had of how organisations analysed incidents, and personal experiences of them, and whether they were able to learn and develop as a result. The conclusion of the study made it clear that if a health organisation has not learned from mistakes that have been made, and taken appropriate measures, then medically adverse events are much more likely to continue to occur.

Further, a descriptive qualitative study by Waters et al. (2012) involved the participation of 16 Canadian registered labour and delivery nurses in focus groups that explored their perceptions of the practice of incident reporting and the identification of factors that facilitated or constrained it. The perceptions of the nurses seemed to be strongly affected by cultural factors in their unit and the complexity of the dynamics of their team. It was considered that the tools for reporting were of a poor standard and incidents tended to be perceived as resulting from a series of related incidents that were seen as beyond their individual control. Fear of litigation played a large part in the perceptions of the nurses; however incidents were also seen as an opportunity for learning to help improve practice with a sense of professional responsibility. However, in general, incidents were seen as having a particular nature depending on the type of work of the unit, and they were mainly attributed to fatigue and/or time pressure.

Both of the aforementioned studies identified staff perceptions of the key factors for improving error reporting practice and the capacity of organisations to learn from mistakes made. However, both of the studies had a number of limitations. The study by Cooke et al. (2007) only used a small sample and it lacked a qualitative element that could have helped in gathering a fuller picture of the complexities and sensitivities involved in incident reporting. The study of Waters et al. (2012) would also have benefited from the use of an interpretive qualitative approach to gain a deeper appreciation of the issues involved.

Despite the benefits outlined by the preceding account, a number of significant barriers to the participation of staff in the reporting of incidents have been recognised, including cultural and professional factors (Waring, 2005). Significant levels of ‘under-reporting’ have been uncovered in various research studies. An earlier British study conducted by Vincent et al. (1999) explored the reason behind the low level of error reporting in obstetric units using a questionnaire with 42 obstetricians and 156 midwives. The research showed that there were variations between the staff in reporting their errors. For example, the midwives reported more errors than doctors, and junior doctors were more likely to report their errors than senior doctors. Furthermore, the study found different reasons were given for not reporting. These were mainly related to the fear of junior staff that they would be blamed, and also workload pressure was a reason that people felt that they did not have enough time to report errors.

Similarly, another British research project by Waring (2004) used qualitative methods in an acute services hospital to explore the relationship between the differences in the amount of event reporting. The study identified considerable differences in the reporting of adverse events between the health care professionals and managers who worked in obstetrics,

anaesthesia, and general surgery departments. The findings showed that medical doctors were more inclined to report adverse events if reporting processes were part of medical practice rather than within an overarching managerial system for the improvement of quality.

However, the sample of the study was limited and not representative of other important health care professionals. An explanation for these contradictions in the findings of the two studies could be that the sample of the study of Waring (2004) included doctors from different departments which can reflect different opinions and experiences from different places, whilst the study sample of Stanhope et al. (1999) involved doctors from only one department. It can be concluded from the differences in these study results that the reporting of errors in hospitals depends upon the place of work and the type and level of health care worker group, as well as the severity of the incident itself.

In addition, Barach and Small (2000) conducted a literature review of articles published between 1966 and 1999 for different non-medical incidence reporting. They also interviewed different practitioners concerning error reporting. The study identified numerous reasons that deterred the reporting of errors such as the lack of confidentiality and privacy of the database, a lack of trust and scepticism among the staff, fear of punishment, no incentives for the staff to encourage them to practice reporting errors and finally, workload and time pressure. Moreover, the qualitative study included 9 focus groups, (four with 49 staff nurses, two with 10 nurse managers, and three with 30 physicians) from 20 academic and community hospitals in St. Louis, in USA. The study identified other reasons that organisations could reduce the incidences of reporting in the health care organisation, such as time constraints and poor feedback and quick response to the staff (Jeffe et al., 2004).

The factors that influence the tendency to report errors included the design of the forms to report incidents, the nature of the systems for communication and feedback within an organisation and concerns over the potentially unjust consequences that may result from having reported an error (Vincent et al., 1999). The fear of being held personally accountable and/or responsible for an error in the context of health care can be a significant inhibitory factor in terms of incident reporting within an environment where a ‘culture of blame’ prevails (Department of Health, 2000). A possible explanation for reluctance to report errors could be that differences in power, and the relationship between different types of health professional, could have a significant bearing on the willingness of staff to communicate openly and to report their errors.

These cultural and social barriers appear throughout the three different Arabic health care setting contexts in Lebanon, Saudi Arabia, and Jordan. These studies both used a questionnaire and included nurses and other health care staff to assess their attitudes toward patient safety culture and medication errors. The findings showed that health care workers perceived the dimension of non-punitive response to errors in their hospital work environment negatively. As a result, staff tended to fail to report their mistakes because they were afraid they could lose their jobs or, at the very least, be subject to some form of disciplinary action (Mrayyan et al., 2007; Alahmadi, 2010; El-Jardali, 2010 & Jaafar et al., 2010). Since the systems for effective reporting of errors need to be followed by an active learning process based on the experience of the errors, the next section will address the importance of organisational learning in improving patient safety.

3.4.3 Organisational learning continuous improvement of patient safety

Organisational learning and continuous improvement form a further dimension for assessing patient safety culture in hospitals. Generally, organisational learning policies aim to develop the current knowledge and skills of staff and find better methods to help them work in partnership to enhance patient safety (Carroll & Edmondson, 2002). Similarly, McSherry (2004), in his study on cannulation practice, took the view that, by adopting the principles of practice development, a comprehensive analysis of the strengths, weaknesses, opportunities and threats (SWOT analysis) of the individual who had been involved in an error incident could be undertaken. In so doing, he argued that greater attention could be paid to the precise nature of the incident and to whether the member of staff had the necessary knowledge, skills and competence to undertake cannulation properly.

Schwedt (1993) cited in Gorelick (2005, p.8) defined organisational learning as ‘a system of actions, actors, symbols and processes that enables an organisation to transform information into valued knowledge which in turn increases its long-run adaptive capacity’. Reason (1997, p.119) believed that the investigation of previous adverse events and near-misses gives “free lessons” to foster the development of defences in the system to protect against some more serious occurrence in the future. Furthermore, he noted that successful approaches to patient safety involve the implementation of proactive systems for error management that ‘learn’ about the threats to the safety of patients accompanied by practices to help ‘understand’ their underlying causes.

This point is also supported by External (2002) and Leape (2002) who both argue that the lack of consistent reporting or learning systems in health care organisations can lead to a persistent repetition of medical errors. The absence of effective learning or reporting

systems has also been shown to prevent the collection, analysis, and distribution of information in a meaningful way that could improve the subsequent performance of organisations (WHO, 2005). A report by the UK Department of Health (2000) considered that the National Health Service in the U.K. could become safer for its patients, by becoming a learning organisation that was prepared to learn from its experiences and, in particular, its failures; in a sense becoming 'an organisation with a memory'. This would prevent the repetition of mistakes where patients could be harmed by errors that could have been prevented.

Similarly, in making a range of recommendations in his report into the complexities of the health management of care provided to children in Bristol Royal Infirmary, Kennedy (2006) recommended that NHS Trusts should use an organisational learning approach to improve their health care practice and to learn from their unsafe practice experience. Furthermore, Carmeli and Sheaffer (2008) agreed with the view of Kennedy about the adoption of an organisational learning approach, believing that improvement in organisational outcomes requires policy based on actual incidences.

A study conducted by Clark et al.(2012) examined the effect of adverse incidences learning systems for improving patient safety. The study reviewed a total of 2,506 patient safety incidence reports that had been made over five years and showed that the adoption of a learning approach in health organisations had contributed to a decline in patient related errors. However, the application of an effective organisational learning policy in hospitals is subject to there being an effective error reporting system already in place, which is, clearly, not always the case, particularly within developing countries.

Hudson et al.(2012) suggested that learning policies, such as staff exchange of information and sharing of work experience, can improve patient safety in hospitals. Moreover, quantitative research conducted by Ginsburg et al.(2010) in 49 hospitals in Canada found that there was a relationship between the support of leadership for patient safety and the increase of organisational learning gleaned from patient safety incidences within hospitals.

On the other hand, cross-sectional descriptive research conducted by Chang and Mark (2010) which sampled 279 randomly selected nurses from 146 hospitals in the United States found there was a negative relationship between the learning organisation and the medication errors made by nurses. However, findings such as these could be affected by the fact that staff may report the incidences of simple medication errors and avoid reporting more dangerous ones because of cultural and managerial constraints. Recent research conducted by Aljadhey et al.(2013) aimed at identifying the challenges to improving medication safety practice in hospitals and community settings in Saudi Arabia. The research involved an exploration of the perspectives of a variety of healthcare practitioners on current issues for medication safety through the interviewing of 65 physicians, pharmacists, academics and nurses. The findings suggested that hospitals needed to establish organisational learning policies to improve their safety medication practices and, therefore to reduce medical errors. The actual implementation of policies to ensure that errors are learnt from is not always easy in hospitals.

Edmondson (2004), for example, believed that for the establishment of an effective organisational learning policy, the leader of a health care organisation must facilitate an open work environment that encourages staff to share information and to report their errors. Wagner (2013) goes on to argue that improvements to safety in organisations requires

effective learning policy applied at all organisational levels and not just at the level of the individual member of staff. Feedback on errors is another important issue when considering the promotion of patient safety in hospitals. It should be provided after the reporting of errors and consideration of the lessons learned so that appropriate corrections can be made to reduce and/or avoid future patient safety defects.

Lundstrom et al.(2002) and Benn et al.(2009) are in agreement that feedback from hospital management is a crucial factor as it reinforces a sense amongst staff that their reports and recommendations have been considered useful and helpful for improving patient safety. In support of this view, a report from WHO (2005) asserts that, in relation to the feedback of errors, it is the response system rather than the reporting system that is likely to have the greatest positive influence on patient safety. An important part in the process is the identification of the cause of any harmful errors and the facilitation of their reduction through reporting and analysing them, and the implementation and monitoring of any policies that may apply. It can be concluded that an environment that encouraged effective communication and openness amongst its staff was needed for a hospital to attain an effective level of organisational practice. The following section will cover the dimension of effective communication and openness and its effect upon safety culture practice.

3.4.4 Communication and Openness

Communication and openness is another dimension noted in the literature as having an effect on patient safety. Baker et al. (2004) argued that the most reliable organisations pay attention to human factors such as, supporting teamwork, open communications and reporting events. For example, the US Joint Commission on Accreditation of Healthcare

Organizations analysed 2,455 adverse event incidences in hospitals in the USA and found that failures in communication were responsible for 70% of those events and that 75% of the patients that had been involved in these communication failures had died (Leonard et al., 2004).

Further research has shown the effect of poor communication on patient safety, such as an observational study conducted by Christian, et al. (2006). A total of 10 surgery cases were checked to see the effect of the operation room systems on patient safety. The study found that ineffective communication between the staff was one of the main potential problems that could threaten patient safety. A report from WHO (2009) asserted that there are five benefits from investment and improvement of communication in health care organisations, as follows: Improved patient safety; improvement in the quality of health care and patient outcomes; decreased length of stay for the patients; increased patient and family satisfaction; and improved job satisfaction and staff morale.

Furthermore, communication is seen as having a very important role for health care staff through providing knowledge, establishing relationships and behaviour patterns and in supporting leadership and team co-ordination (WHO, 2009). Leonard et al. (2004) emphasised the significance of good communication in protecting patient safety and indicated that communication failures can lead to inadvertent patient harm. In particular, Leonard et al. (2004) identified problems faced within a large, not-for-profit health system in America, through a detailed case study of the experiences of communication and teamwork within human factors training. They identified that failures of communication and teamwork occurred in the following circumstances:

- If hospital departments do not follow recognised policies and protocols.

- If health care staff have no clear division of their duties and responsibilities to help them to work in a team.
- If health care staff are distracted and interrupted during their work.
- If there are differences in the level of skills between staff and the amount of training they have received.
- If there are problems with the relationships between health care staff within different professions and at different levels.
- If staff are affected by work conditions, such as an excessive workload and pressures of time, as well as human factors such as stress and fatigue.
- If there are differences between staff due to cultural and gender-related factors.

Researchers suggest that patient safety can be negatively affected by the challenges presented by inter-professional communication between nurses, physicians and other care workers (Baggs,1999). In this context, Reader et al.(2007) conducted a cross-sectional study in four hospitals in the UK to investigate whether nurses and doctors in Intensive Care Units (ICU) had a shared perception of interdisciplinary communication. The study used a survey involving a sample of 48 doctors and 136 nurses and found differing perceptions amongst staff. For example, the study showed that nurses reported that there was a low level of interdisciplinary communication openness between them and doctors. The study also showed that the communication and openness was low between trainee doctors and senior doctors.

However, the study was limited in that the sampling method involved a small, unequal sample between the different types of staff, which could lead to bias. For instance, the number of senior doctors was small compared with the nurses and trained doctors surveyed. The authors acknowledged that it would be more useful if the study had used another data

collection method, such as an observational methodology. To overcome the inter-staff communication problems and their effect on patient safety in the hospitals, a number of researchers have shown that communication between staff could be improved through the use of communication tools. For example, a prospective cohort study conducted by Pronovost et al. (2003) in 3 health care settings, showed that using a daily goals form, which included a good communication plan and the identification of staff tasks, improved the quality of health care for the patients and led to a reduction in their stay in hospital.

Similarly, an intervention research project was conducted by Clark et al. (2009) to evaluate PACT (Patient assessment, Assertive communication, Continuum of care and Teamwork with trust) in a private hospital in Victoria, Australia seeking improvement in inter-staff communication during the handover of the patients. The research showed that the communication between nurse and doctors improved after written SBAR (Situation, Background, Assessment and Recommendation) reviews of patient care during handover procedures were produced by those involved. The findings of both studies showed the effect of communication in improving the quality of health care and patient safety practice. However, the research findings would be more reliable if these tools had been used in more than one work area and if they had been used in both public and private hospitals.

Research has shown that communication problems happen not only between the health care professionals in hospitals but also between the staff and managers. For instance, a recent cross-sectional study by Braaf et al. (2013) that used a questionnaire with 281 health care providers from 3 general Australian hospitals in the perioperative pathway, concluded that patient safety in hospitals could be affected by poor organisational communication in the transfer of information from managers to health care workers. Furthermore, they found that patient safety problems can be caused by a lack of

communication in health care delivery due to poor documentation of patient information and miscommunication during patient handover procedures and between medical shift exchanges.

The system for communication may also have weak points during the transmission of patient information between hospitals, for example in safety alert scenarios. Status issues may also play a part, with junior staff perhaps fearful of speaking up (WHO, 2009). It can be noted that effective communication can improve patient safety practice and reduce medical errors, and improvement in communication can also have an effect upon other important aspects of patient safety culture practice such as teamwork.

3.4.5 Teamwork and patient safety

Many studies have shown the importance of teamwork in healthcare settings and it is becoming increasingly emphasised in healthcare practice (Barrett et al., 2001; Clements et al., 2007). The adoption of a teamwork approach in health organisations has many potential benefits including improvement in the quality of patient care provided and a reduction in errors. (McCulloch et al., 2009 & Manser, 2009). However, the lack of teamwork between staff could increase the risk of complication and potentially result in the death of the patients (Mazzocco et al., 2009).

An empirical study conducted by Grogan et al. (2004) in different departments of an American university hospital adopted the aviation Crew Resource Management (CRM) style of training in sessions related to the creation and management of teams. In doing so, it recognised adverse situations (red flags), cross-checking and communication, decision making, performance feedback and the management of fatigue. The study involved a total

of 489 staff in the CRM training session and it was followed by the completion of a questionnaire. The study found that the staff agreed that such training sessions could reduce incidences of patient safety problems and could improve the patient safety practice in hospitals. Their large sample was drawn from a variety of different health care professionals, however the study findings should be used with caution; the research did not use a case and control study design, even though such an approach could have been more reliable and effective for evaluating such an intervention. The authors also acknowledged that they had had difficulty in identifying who had filled in the questionnaire.

Similarly, Siassakos et al.(2009) highlight the importance of the application of a multi-disciplinary health care group teamwork approach for improving patient safety and for enhancing the quality of health care. They conducted a retrospective observational cohort study in a University Hospital in the United Kingdom to assess whether multidisciplinary training of teams was associated with an improvement in the management of cord prolapse in the maternity setting specifically during the diagnosis- delivery interval. In comparing the management of cases before and after the staff training, the study concluded that the training had led to an improvement in staff performance. However, the findings of the study did not demonstrate a strong connection between their intervention and improved staff practice, and the researchers acknowledged that this improvement could have been influenced by a confounding factor with other clinical governance programmes that had already been applied in the hospital.

Furthermore, based on the discursive analysis of the main elements involved in the provision of excellent standards of safe nursing care for patients, McSherry et al. (2012) concluded that it was essential for healthcare environments to facilitate genuine working

collaborations, partnerships and teamwork between leaders, educators and nurse managers and their respective organisations.

An observational study was conducted by Lingard et al.(2004) to develop a teamwork checklist for the operation room (OR) in Canada. It recorded 90 hours of observation of 48 surgical cases, and included 94 team members from different health care professions. The study found that ineffective teamwork communication was a particular problem between staff during a medical team shift exchange. Likewise, Flin et al.(2006) conducted a quantitative study in 17 Scottish hospitals. It used a questionnaire to examine surgical staff attitudes to safety and teamwork in the operating theatre. The study involved a sample of 352 individuals representing consultant surgeons, trainee surgeons and nurses and showed that the staff gave positive responses about the effect of teamwork practice on patient safety. However, the findings should be treated with caution as the authors acknowledged that the response rate of their research was low, particularly amongst nurses and trainee surgeons and, as such, could have limited the representativeness of the study sample.

In addition, Bristowe et al.(2012) conducted a focus group discussion in four large maternity units in England to assess the experience of staff in relation to the effectiveness of teamwork in medical emergencies. The study findings showed that effective teamwork for the provision of good quality health care for the patients in medical emergencies required good leadership. The study participants described a good teamwork leader as one who has good communication skills for communication with both staff and patients.

Moreover, an Arabic study conducted by AbuAlRub et al. (2012), using a questionnaire with a convenience sample of 381 nurses in a Jordanian hospital, found there was a positive correlation between safety climate and teamwork. It also showed that there was a correlation between teamwork and the intent of nurses to stay more committed to

providing good quality health care for their patients. Although this study addressed an important aspect of teamwork and safety climate, the results would have been more useful if qualitative research methods had been deployed to ‘drill down’ into the reasons for respondents’ perceptions and if a variety of different health care professional groups had been involved.

It seems from a review of the literature that teamwork is an important aspect that plays a vital role in the promotion of patient safety in hospitals. Also, teamwork can reduce workload through the sharing of tasks between staff, especially if staffing levels are insufficient for the number of patients in their work area, as discussed in the ensuing section.

3.4.6 Staffing level and Patient safety

Staffing level is another important dimension which plays a vital role in determining the standard of patient safety. The World Health Professions Alliance (2002) identified that a shortage in health professionals is considered to be a serious factor that is a threat to patient safety. Research has shown that understaffing is associated with negative health care outcomes for patients. In a study undertaken by Rogers et al. (2004) on 393 hospital staff nurses in USA, the nurses were asked to answer several questions regarding the real number of work hours and the work hours that they had been scheduled, as well as the hours of sleeping, overtime work, and days off. The real work hours per shift and the duration of scheduled hours were aggregated and calculated per nurse and per week. It was shown from logbooks that the nurses usually worked longer than they were scheduled to and, of the 5,317 work shifts that they had worked, approximately 40% had been logged as having exceeded twelve hours. If nurses worked more than twelve hours, worked overtime

or worked more than forty hours a week, then the risk of them making an error was significantly increased. Rogers et al. (2004) showed that the use of overtime and extended shifts of work had been escalating as hospital management tried to cope with a shortage in Registered Nurses (RNs). However, the findings of the study were drawn from a hospital with a small number of nurses and the response rate was low. Such limitations could reduce the validity and the generalisation of the research.

In another study that tested the effect of the number of shift work hours upon the quality of nursing care, Todd et al. (1989) found that nursing staff who had been working for less than 8 hours scored a better level in a test of their performance than those who had been working for more than 12 hours.

The findings are corroborated by other studies including a piece of research by Cimiotti et al. (2012) that showed the effect of staffing levels on patient outcome. The large study was undertaken in 161 hospitals in the state of Pennsylvania, USA and it involved a quantitative survey with 7,076 RNs for an assessment of the incidence of urinary tract infection and surgical site infection. The study found an association between the number of staff and patients and also the incidence of hospital infection rates. It found the departments with few patients and an adequate staffing level reported less hospital infection incidences.

There is a lack of research related to staffing level and its effect on patient safety in the context of Arabic countries. However, there has been significant research conducted by Al-Kandari and Thomas (2009) in 5 Kuwaiti hospitals that involved 780 registered nurses and showed a positive correlation between the workload of the nurses and an adverse patient outcome. Although the study sample size was large, the sample involved only one

health care professional group and, therefore, the findings did not reflect the experiences of other health care professionals regarding the effect of workload upon patient safety incidences. That said, the findings did correlate with another Arabic study undertaken by Al-Ahmadi (2009) in hospitals in Riyadh in Saudi Arabia. The study used a cross-sectional survey, using a survey which included nine public hospitals and two private hospitals and involved a sample of 1,224 health care workers. The study identified that one of the key areas that had an effect upon patient safety, and that needed to be improved in both public and private hospitals, was the shortage in staffing levels. However, the study findings should be treated cautiously as their response rate was low. Due to the nature of work at a hospital, health care staff have to work on a rota and, in terms of risk for patient safety, the handover of duties at the end of their shifts is a very significant moment.

3.4.7 Handover and Patient Safety

A high proportion of claims for malpractice relate to failure to implement proper measures during handovers (Patterson et al., 2004). WHO (2007) underlined that many patient safety problems and adverse events could happen in hospitals as result of ineffective communication during hand over of the patient from one health care provider to another; or from one department to another. When there is a handover within healthcare, it involves the transfer of accountability and responsibility for a patient from one health care provider to another, as well as the exchange of information that is specific to the patient (NPSA, 2004). Handover could be inter-health care professional, such as that between an anaesthetist and the surgeons in an operation room. Also, the handover could be inter-departmental, such as between ambulance services and emergency departments. Furthermore, the handover could be an exchange that takes place between medical shifts.

Moreover, a handover could be when patients are discharged from hospitals when they are on their way home (Wong et al.,2008).

The goal of the handover is to provide timely, accurate information about a patient's care plan, treatment, current condition and any recent or anticipated changes (The Joint Commission, 2007). However, Cook et al. (2000) expressed concern about the gaps that can occur in the continuity of patient care during handovers, and asserted that it is a 'high-risk' process. Coffey et al. (1988) showed the effect of shift time on the quality of health care provided to patients. Using a questionnaire survey of 463 registered nurses from five hospitals in the south eastern part of the USA, an examination was undertaken into the influence that time of day, and the rotation of shifts had upon the stress amongst nurses and their work performance. They found a significant positive association between the staff performance of nurses who had been working on a day shift compared with those who had worked on a night shift. However, this research did not include a measurement for the variable of total number of staff working on the shift, which may have been behind the positive correlation, with more staff having worked the day shift rather than the shift at night.

A systemic review conducted by Bost et al.(2010), related to handover in emergency departments and hospitals, reviewed 252 documents and 8 studies of handover procedures between emergency departments and ambulance services. The review study identified three themes. Firstly, it noted that important information may be missed during clinical handover. Secondly, it identified that structured handovers, that include both written and verbal components, may improve information exchange and, thirdly, it highlighted that multidisciplinary education about the clinical handover process may be important in encouraging teamwork.

Bost et al. (2010) also recommended a number of practice improvements during handover including the use of written notes, the adoption of standardised formats for handover, the development and use of national guidelines, improvements to the level of teamwork, the identification of when the transfer of responsibility occurs, and the provision of on-going staff training. For that reason WHO (2009) designed a patient safety checklist with surgical departments to ensure that staff and comply to standard procedures with consistent steps before, during an operation, and after to reduce the errors and complication that could happen to patients.

A further Danish study conducted by Siemsen et al.(2012) explored the attitudes and experiences of staff in relation to the main factors that have an effect on the procedure for handover of patients from ambulance services to hospitals or handover within departments. The study used qualitative methods and conducted 47 semi structured interviews with health care workers. The study concluded that there were a number of factors from the handover procedure that had an effect on patient safety, i.e. organisational factors, teamwork awareness, communication, professionalism and infrastructure. Although, the work of Siemsen et al. (2012) provides comprehensive information about the factors that have an effect on patient safety during the handover procedure, it did not identify the variation of the effect of handover procedures on patient safety between hospital departments as their study only used one data collection approach.

However, Pezzolesi et al. (2013) study adds weight to Siemsen et al's findings. They found from their study that such problems during the handover procedure were particularly related to failure in human factors, such as communication and teamwork between different professional groups, and this could be improved through the use of a handover procedure instrument.

Observational studies undertaken by Nagpal et al.(2013) sought to improve the postoperative handover practice in a British hospital. A trained researcher evaluated the procedure of 90 handovers in which 50 handover practices were followed before the introduction of a clinical handover protocol and 40 were evaluated following the application of the protocol. The findings showed a significant improvement in the quality of handover, particularly in relation to communication and teamwork aspects between staff and the reduction of adverse events due to information problems. The study provided evidence of the importance of using a protocol in improving handover procedure in hospitals. However, the authors acknowledged that their evidence was drawn from a small sample size and from only one hospital department and, therefore, their findings could not be generalised to other health care settings.

Similarly, the British Medical Association (BMA,2004) suggested some required improvements for hospital management and staff for the achievement of a good quality of handover for their patients, such as the maintenance of coordinated measures during handover and exchange of shifts. Also, the BMA suggested that adequate time is crucial for conducting a good handover procedure and that clear leadership helps staff to carry out their handovers effectively. In addition, the BMA reported that the availability of information systems and technology are key to conducting a safe handover.

A further qualitative study undertaken in the UK by Nagpal et al.(2010) involved the interviewing of 18 health care providers to discover the main problems that occur during postoperative handovers. The study identified that the numerous transfer information and communication problems that occurred during their handovers were mainly due to the

informal nature of their handover procedures, with them being seen as unstructured, inconsistent, and having incomplete information.

Although this literature review provides some useful insights into patient safety culture in hospital settings, it is evident that the various studies included in the review are subject to some limitations. Most of the studies used a quantitative study design, using only a survey for assessing patient safety culture in hospitals (Singer et al.,2003; Baker et al., 2004; Pronovost et al.,2006 ; Cooke et al.,2007; Mrayyan et al.,2007; Smits et al.,2008 ; Al-Kandari & Thomas, 2009; Al-Ahmadi, 2009; Alahmadi, 2010; El-Jardali,2010; Jaafar et al.,2010; Chang & Mark,2010; Mardon et al.,2010; Alazab,2013; AlJarallah & AlRowaiss, 2013; Kagan & Barnoy, 2013). I was unable to find any research that had considered patient safety culture in hospitals using a combination of quantitative and qualitative methods. Also, the majority of studies have been conducted in developed countries. According to WHO (2008), there is a lack of research that focuses on patient safety in developing countries, often because of social and political constraints. Furthermore, the search of the literature to identify relevant studies conducted in Libya failed to yield any published papers.

Furthermore, no studies in Libyan hospitals had used the Survey of Hospital Patient Safety Culture (SHPSC), a recommended questionnaire format for the assessment of patient safety culture in hospitals across the world (AHRQ, 2004). Upon identifying this widely used data collection instrument, the most commonly used questionnaire for the assessment of patient safety in Arabic countries, the approach was chosen for the development of the design and methodology of the current study (AHRQ, 2004).

Also, the previous studies helped the researcher to identify which patient safety culture aspects needed to be considered when assessing the current state of Libyan hospitals. The

current study also benefited from an appreciation of how other studies had been analysed. The most significant findings of previous patient safety studies gave an overview about the main factors that had a bearing upon patient safety. For example, the leadership and hospital management dimension has been shown to play an important role in supporting patient safety issues (Navon et al.,2005 ; Thomas et al., 2005; Blake et al., 2006; Shipton et al., 2008; Alahmadi, 2010; El-Jardali et al., 2010 & Wong et al. ,2013).

In addition, the importance of reporting errors in an open hospital environment, that did not have a punitive or blame culture, was reviewed and it was shown that it encouraged responses to be made to errors and learning from mistakes (Vincent et al.,1999; Carroll & Edmondson,2002; Edmondson,2004; Jeffe et al.,2004; McSherry, 2004; Waring, 2004; Waring, 2005; Leape & Fromson, 2006; Kennedy, 2006; Cooke et al., 2007; Mrayyan et al., 2007; Alahmadi, 2010; El-Jardali et al., 2010; Ginsburg et al., 2010; Clark et al.,2012 & Waters et al., 2012).

Moreover, most patient safety research has confirmed that the quality of communication and teamwork between health care workers played a role in patient safety and if they are enhanced they can improve the quality of health care for patients and reduce medical errors (Baggs,1999 ; Barrett et al.,2001; Pronovost et al.,2003; Grogan et al.,2004; Leonard et al.,2004; Lingard et al.,2004; Christian et al., 2006 ; Flin et al., 2006; Clements et al., 2007; Reader et al., 2007; Clark et al.,2009; McCulloch et al.,2009; Manser,2009; Mazzocco et al.,2009; Siassakos et al.,2009; McSherry et al.,2012; Bristowe et al., 2012; AbuAlRub et al., 2012 & Braaf et al., 2013).

Finally, the literature showed that many patient safety incidences occurred in hospitals due to there being no fixed policy or protocol in place for the handover of patients from one shift to another (Coffey et al.,1988; Cook et al., 2000; WHO,2009; Bost et al., 2010;

Nagpal et al., 2010; Siemsen et al.,2012; Pezzolesi et al., 2013 & Nagpal et al., 2013).

Therefore, the intention of the current study is to examine the perception of health care workers about these safety culture dimensions in the Libyan hospitals under the study.

3.4.8 Summary:

This chapter presents a review of current literature and highlights the significant results that emerge from the studies related to the issue of patient safety culture in hospitals. It explains the concepts and features of safety culture and shows the main patient safety culture dimensions that affect patient safety. These dimensions are mainly related to the role of leadership and hospital management in supporting best safety practice. Also identified is the necessity of error reporting systems in hospitals to analyse the causes of patient safety incidences and to prevent them from reoccurrence. In addition the importance and impact of communication, teamwork and patient handover on patient safety are highlighted. Furthermore, it gives the rationale of the current study to be conducted in Libya and it summarises the aims of the study and research questions. It summarises the main literature that helped inform the current study. The following chapter will provide a detailed discussion of the research approach and methodology issues that the research addresses. It also explains the justification for selecting the methods for data collection, and describes the design of the data collection instruments.

Chapter 4: Methodology

4.1 Introduction

In this chapter, consideration will be given to the research design adopted, followed by a more detailed description of the research approaches, why they were chosen and any limitations to them. Also, ethical considerations will be addressed and explanation given of the methods used in both the data collection and analysis of the mixed methods approach, in order to achieve the study objectives.

4.2 Research methodology

The choice of methodology depends upon the scope and aim of the research, its questions, any constraints, the data required, practical matters and the research philosophy taken (Denscombe, 2007 & Bryman, 2012). Clearly, consideration has to be given to what specific statistical procedures and measurements are appropriate to use (Hussey & Hussey, 1997; Saunders et al., 2009 & Bryman, 2012). The term methodology would also incorporate the literature review and tools employed for presentation of data following its collection and analysis. There has been a long standing debate within the social sciences over how to choose the appropriate approach for conducting research (Easterby-Smith et al., 2002 & Bowling, 2002).

There are two main paradigms of research that have been identified by methodological philosophers, which are the positivist paradigm and the phenomenological (interpretive) paradigm (Creswell, 2009 & Tiryakian, 2009). However, the logical choices made for the

study depend upon the philosophical perspective of the researcher. The first phase of this study used a positivist paradigm in a process that adopted a deductive approach that began with theories and concepts on patient safety culture dimensions and collected data to either prove or disprove them (Bryman, 2008). Positivism has been defined by Bryman & Bell (2011, p.15) as “an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond”. As such, natural and social science methods are applied in this study that facilitates analysis, and the explanation of the perceptions of the health care workers, through the use of statistical techniques.

Furthermore, the researcher chose an interpretive, qualitative approach for Phase 2 of this study as the quantitative research in Phase 1 had already provided a description of the patient safety culture in Libyan hospitals. Moreover, rather than solely using a positivist, deductive approach, the researcher believed that an interpretive phenomenological approach was needed in order to provide an adequate exploration of patient safety issues as addressed by the qualitative research questions used in Phase 2. This was done through an inductive approach where the researcher collected data about the perception of health care workers, based on more holistic observation of meanings rather than just ‘facts’, and developed concepts as a result of subsequent data analysis (Collis & Hussey, 2003).

4.3 Aim of the study

To examine the perception of patient safety culture among health care health care workers in Libyan Hospitals with research questions:

- a) What is the perception of patient safety culture among health care workers in Libyan hospitals?

- b) To what extent do health care workers in Libya perceive patient safety to be as an issue?
- c) What factors enable and inhibit patient safety practice from the prospective of the health care workers?

4.4 Study design

Nowadays, many researchers believe that inquiry into current complex problems, such as patient safety issues, requires the use of a mixed methods research, in order to help the researcher more fully understand a research phenomenon (Zhang et al., 2002; Nieva & Sorra, 2003; Flin et al., 2006 & Guldenmund, 2007). A number of different definitions have been made for mixed methods research that reflect several aspects of the research philosophy, process, design and methodology (Cresswell & Clark, 2011). In seeking a consensus for a definition on mixed methods research, Johnson et al. (2007) e-mailed a total of 19 researchers specialising in methodology to ask them for their current definition; a general definition based on an analysis of their findings is as follows:

“Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration” (Johnson et al., 2007.p 13).

The current study used mixed methods research with multiple measures of the same phenomenon from various complimentary sources (Johnson & Onwuegbuzie, 2004). It adopted a combination of quantitative and a qualitative design in one study. It was divided into two phases: Phase 1, which used quantitative methods, i.e. a survey; and Phase 2, which used qualitative methods, i.e. semi-structured interviews. The study used mixed

methods because the researcher believed that employing both qualitative and quantitative tools leads to a better understanding of the complexities and sensitivity of the research topic (Nieva & Sorra, 2003 & Guldenmund, 2007).

The researcher was unable to locate any mixed methods research that had considered patient safety culture in hospitals in developing countries. So, the use of a combined mixed method approach helped the researcher more fully understand the perceptions of healthcare workers in regard to factors affecting patient safety practice in Libyan hospitals. The study used a mixed method approach for the maximisation of their strengths and a minimisation of their weaknesses; the qualitative data explained and supported the quantitative findings. Also, the researcher believed that mixed methods could help him to corroborate the quantitative and qualitative findings in order to answer different research questions or to compare them after the data collection (Bryman, 2012).

Furthermore, the study used mixed methods to generate reliable and valid findings about the situation of patient safety in the Libyan hospitals. Moreover, it used inductive and deductive research using both numbers and words to assess the perception of health care workers related to patient safety culture. This study selected a mixed methods research using a 'triangulation' approach. Triangulation is in reference to the use of information gathered from various sources which, once analysed, helps to ensure that a less biased view of a particular matter is obtained (Saunders et al., 2009; Ghauri & Gronhaug, 2010). A triangulation design is considered the most well-known and commonly used approach to mixed methods research (Creswell, 2009). The use of triangulation in this study provided a more comprehensive appreciation of the situation, and the second phase helped in confirming the quantitative findings and helped to identify if there were any further influences that had not been touched upon by the questionnaire. Initially, data was

collected by the use of a self-administered questionnaire, and this was then followed up by semi-structured interviews which helped the researcher confirm data gathered from the questionnaire and enabled further probing to discover any additional details that the questionnaire may not have provided.

Indeed, Creswell and Clark (2011, p. 18) stated that: *“Triangulation research is important today because of the complexity of problems that need to be addressed, the rise of interest in qualitative research, and the practical need to gather multiple forms of data for diverse audiences”*. Four different types of triangulation were categorised in the work of Denzin (1978) cited in (Johnson et al.,2007) as follows: a) triangulation of theory, i.e. the use of various theories and perspectives for the interpretation of study results; b) triangulation of data, i.e. the use of a number of different sources within a study; c) triangulation of method, i.e. the study of a research problem using various methods; and d) triangulation of investigators, i.e. undertaking the research using a number of researchers.

A distinction was also made between a ‘between-methods’ form of triangulation, that involves the use of both qualitative and quantitative approaches, and a ‘within-methods’ form of triangulation, that involves the use of either multiple qualitative or multiple quantitative approaches. Denzin believed that the ‘within-methods’ form was limited as it only uses a single paradigm which may give an inherent weakness to a study approach and its findings. In this current study between-method triangulation has been used as it was considered that the inherent bias of data from any particular source, or by the use of any particular investigators or methods, could be reduced by the utilisation of mixed methods. So a survey and semi-structured interview were deployed in this study to maximise the reliability and the validity of the study findings and reduce the bias. It is also considered that a combination of data sources and methods results in a truer picture of a particular

social phenomenon (Denzin, 1978& Denscombe, 2007). The below table 4.1 summarises the design of the study.

Table 4.1 Outline the structure of mixed methods (triangulation approach) for this study.

Study Phase	Mixed methods study design	Sample type	Number of Sample	Number of participants	Response rate	Data collection methods	Research paradigms	Data analysis	Findings Integrated
<u>Phase1</u>	Quantitative	Stratified sample	478	346	72%	Survey	Positivist (deductive)	SPSS	Descriptive (Numbers)
<u>Phase2</u>	Qualitative	Purposive sample	30	27	90%	Semi-structure interview	Interpretative Phenomenology (Inductive)	IPA	Interpretation (Words)

4.5 Setting

Data were collected from samples of the health care workers and health managers in the three large Hospitals located in the Northeast of Libya. See Chapter 2, figure 2.1. The three Hospitals were selected because they are located in one geographical area, allowing for ease of access and yet they represent hospitals located in all the states in Libya because they have similar organizational and managerial processes in place. Furthermore, the majority of health care workers have graduated from Libyan Medical Schools and they share a similar cultural background.

4.6 Phase 1: Quantitative Research

Phase 1 adopted quantitative research; the study took place between June 2010 and December 2010. Researchers describe that quantitative research seeks out the causes or

details of social phenomena without much regard for subjective matters related to the individual (Alston & Bowles, 2003; Collis & Hussey, 2003). It can be fast and economical especially in cases where statistics are aggregated from large samples (Easterby-Smith et al., 2002). Therefore a survey was used in phase 1 as a first step for assessing patient safety culture and its associated factors. Phase 1 also helped the researcher to assess the perception of health care workers towards patient safety culture from a large sample (n=346).

In addition, the quantitative design facilitated the delineation of the differences between health care workers in terms of their perception toward patient safety culture. And it enabled the measurement of the research problem with a consistent instrument (Bryman & Bell, 2011).

It has been argued that quantitative research tries to reduce, neutralise or eliminate, as much as possible, the influence that the researcher has upon the phenomena under investigation (Robson, 2002). Therefore, the positivist paradigm was used as a reductionist approach facilitates a simplification of a real world hospital environment in which variables of patient safety dimensions naturally or usually exist (Remenyi et al., 2002).

Furthermore, following a positivist paradigm allowed the researcher to examine the relationships between patient safety culture variables and their impact on patient safety practices. Moreover, the quantitative study facilitated in the generalisation of the results to a wider population (Saunders et al., 2009). It is appropriate to use a quantitative approach when knowledge and/or information is already available that allows standard methods of data collection to be used by survey or questionnaire. Instruments that measure individual attitudes or performance can be used for the collection of quantitative data (Creswell, 2009).

4.6.1 Data collection instrument

Bryman (2004) defined that questionnaire as an instrument which is completed by the participants in the research. It can be used to collect data to investigate the knowledge and behaviour of participants (Bowling, 2002). Phase 1 used the survey (HSOPSC) as an instrument to assess the perception of health care workers towards patient safety culture. “The Hospital Survey on Patient Safety Culture”(HSOPSC) was developed by the US Agency for Health Care Research and Quality (Nieva & Sorra, 2004), and is the most popular data collection instrument in patient safety culture in hospitals (Nieva & Sorra, 2004 ; Singer et al.,2003; Colla et al.,2005; Fleming, 2005 ; Pronovost, & Sexton, 2005). Moreover, it had been translated into Arabic and used in a number of Arab countries to assess the perception of patient safety culture among health care workers (Al-Shaq, 2008; Al-Nawafleh, 2009 & Abdalla, 2009).

4.6.2 Reliability and validity of the HSOPSC

The term ‘reliability’ refers to whether or not research results can be repeated (Oppenheim, 2001 & Bryma, 2012). The measurement of reliability comprises of three aspects, equivalence, stability and internal consistency (homogeneity) in its results. Equivalence refers to the level of agreement between two or more instruments when administered around the same time. The second aspect, stability, refers to whether similar or identical scores are obtained if tests are repeated on the same group of respondents, i.e. whether scores recorded are consistent from one particular time to the next.

Internal consistency (homogeneity) is in reference to the degree to which items on an instrument or test are providing a measurement of the same particular thing, and the degree

to which the questionnaire is free from random errors (Bowling, 2002 & Miller, 2014). Internal consistency (homogeneity) can be estimated through use of the Kuder-Richardson or the split-half reliability index, coefficient alpha index. Cronbach's alpha was used in the measurement for testing questionnaire reliability of this study. It measures the average of all questionnaire items and their correlation with their scales (Bowling, 2002). Quantitative researchers such as Sekaran (2003), and Crano & Brewer (2008) noted that the closer a reliability coefficient is to 1.0 the more reliable are the findings of the study. They also, noted that if the reliabilities had a value of below 0.6, the research findings could be considered to be unreliable (Crano & Brewer, 2008).

Validity is the degree to which an instrument succeeds in measuring what it is supposed to measure (Alston & Bowles, 2003). There are two measurements for research validity. External validity refers to confidence in the applicability of the findings of a research study to other settings or people. While, internal validity is about how the research was done rightly and consider whether it avoided the influence of confounding factors on the research outcome (Roberts et al., 2006). Internal validity can be measured mainly with three approaches namely: content validity, construct validity and criterion-related validity (Punch, 1998).

Miller (2014) explained these three approaches as follows: content validity relates to the level to which an instrument is able to fully measure or assess the construct of interest. Typically, an instrument is developed through the achievement of a rational instrument analysis by the respondents that are familiar with the construct of interest (ideally from 3 to 5 respondents). Respondents will, in particular, review all items for their clarity, comprehensiveness and readability and arrive at a degree of agreement as to which of the items ought to be included within the final instrument. Construct validity is considered to

be a process that is ongoing in that a theory is refined, if need be, so that predictions can be made about test scores in different situations and settings. Assessment of criterion-related validity is done if there is interest in determining the relationship of specific criterion to scores from a test. Construct validity is the extent to which measurement done by an instrument has measured the theoretical construct or trait that a researcher has intended to measure (Miller,2014).

The HSOPSC survey used in this study was considered to be valid as it had been piloted on 1,419 hospitals employees from 20 hospitals across the USA. The results showed that all 12 dimensions had high levels of reliability (Cronbach's alpha ranging from 0.63 to 0.84) (Sorra& Nieva, 2004). Singla et al. (2006) conducted a systematic review of 13 instruments to compare between different patient safety surveys in terms of the emphasis of their content and their length, as well as noting their common usage in assessing patient safety culture. They argued that, whilst no instruments are perfect, the HSOPSC is a good instrument as it contains extensive information for assessing the patient safety culture.

Indeed, many studies have shown that the HSOPSC has good psychometric properties; for instance, Sorra and Dyer (2010) analysed survey data from 2,267 hospital units and 50,513 respondents to examine the psychometric properties of the items and composites of the HSOPSC whilst studying 331 U.S. hospitals. Their results provided overall supporting evidence that the 12 dimensions and 42 items of the survey had acceptable psychometric properties at all levels of analysis.

Moreover, Najjar et al. (2013) investigated the psychometric properties of the HSOPSC and its appropriateness for Arabic hospitals with a panel of experts to evaluate the

reliability and validity of a version translated into Arabic. Data were collected from 13 Palestinian hospitals including 2,022 healthcare professionals. The researcher acknowledged that the Arabic version had low internal consistency in some of its scales compared to the original survey or to other translated versions, such as those used in Turkey, England, Norway and Belgium. However, their study concluded that the Arabic version had good validity and acceptable reliability, with Cronbach's alpha ranging from 0.41 to 0.87, and that it was a suitable instrument to assess safety culture in hospitals in the Arabic speaking world. Table 4.2 displays also details of the reliability of the original survey and the Arabic version.

Table 4.2 Reliability of safety culture dimensions

Dimension	No of items	Cronbach's alphas of (a) which developed by HSOPSC (AHRQ)	Cronbach's alpha (α) HSOPSC(Arabic version)
Frequency of event reporting	3	0.84	0.87
Overall perceptions of safety	4	0.74	0.43
Manager expectations	4	0.75	0.75
Organizational learning	3	0.76	0.79
Teamwork within departments	4	0.83	0.77
Communication and openness	3	0.72	0.41
Feedback about error	3	0.78	0.69
No punitive response to error	3	0.79	0.59
Staffing	4	0.63	0.65
Hospital management support for patient safety	4	0.83	0.66
Teamwork across hospital departments	4	0.80	0.61
Hospital handover and transitions	4	0.80	0.73

Sources :(Sorra & Neiva, 2004& Najjar et al., 2013).

The HSOPSC contains a number of 12 safety culture dimensions, which assess patient safety culture amongst health care workers. The survey measured 7 patient safety culture dimensions at the departmental levels:

no	Dimension	item
1	Supervisor/manager expectations & actions promoting patient safety.	4
2	Organisational learning & continuous improvement.	3
3	Teamwork within units.	4
4	Openness of communication.	3
5	Feedback & communication about errors.	3
6	Non-punitive response to error (blame-free environment).	3
7	Staffing.	4

Furthermore, the survey measures 3 patient safety dimensions at the hospitals levels:

no	Dimension	item
1	Hospital management support for patient safety	3
2	Teamwork across hospital units.	3
3	Hospital handover.	4

Moreover, 2 patient safety culture outcomes were included:

no	Dimension	item
1	Overall perceptions of patient safety.	4
2	Frequency of events reporting.	3

The survey items are measured on a 5-point Likert scale and ranged from (1) "Strongly Disagree" to (5) "Strongly Agree and take on average about 15 minutes to complete. Beside the 12 listed dimensions the survey includes an item that asks about the number of events reported the past 12 months. Participants are also asked to grade the patient safety in their work area on a five point Likert scale ranging from "Excellent" to "Failing"(See Appendix (1).

The questionnaire can be used to assess the safety culture of a hospital as a whole, and for specific units within hospitals, as well as to track changes in patient safety culture over time and evaluate the impact of patient safety interventions (Sorra & Nieva, 2003). Smits and colleagues (2008) conducted a study using HSOPSC to measure patient safety culture in some Dutch hospitals. They confirmed that the survey was effective in assessing a group safety culture just as well as individual attitude.

The justification for the survey method adopted during Phase 1 is as follows. Firstly, a questionnaire survey is a widely used method for the collection of primary data within previous research related to the assessment of patient safety (Singer, 2003; Sorra & Nieva, 2004 & Colla et al., 2005). Secondly, the approach taken in this survey was believed to be appropriate because descriptive information and an overall picture of the study population was provided by the identifying of relationships between research variables and the conducting of the required statistical tests to analyse the data (Collis & Hussey, 2003 ; Saunders et al.,2009). Thirdly, for the achievement of the research objectives, it is necessary to have a large sample from the targeted population from different geographic locations and from different professional backgrounds. The use of survey ensures that these requirements are achieved.

4.6.3: Questionnaire translation

The HSOPSC questionnaire has been translated from English into a number of languages including the Arabic language by an international user's network (AHRQ, 2008).As the study was conducted in Libya (an Arabic country) and the first language of the participants is Arabic, the version of the questionnaire as used by Al-Ishaq, 2008; Abdalla, 2009; Al-

Nawafleh.2009; Alahmadi, 2010; El-Jardali et al., 2010; Aboul-Fotouh, 2012& Najjar et al., 2013) was adopted for the study.

4.6.4 Pre-test of the Questionnaire

Prior to the administration of a questionnaire survey some researchers argue for the need to undertake a pre-testing of the questionnaire (Oppenheim, 1992 & Brace, 2004). Pre-test has the main objective of detection of potential shortcomings to the administration and design of the questionnaire survey (Hadron, 2001; Collis & Hussey, 2003) recommend that questionnaires are pre-tested on healthcare workers with similar profiles to the sample to be targeted and, therefore, could be expected to have an awareness of the research topic. Thus, any difficulties in comprehending the questions can be anticipated, such as ambiguities in the wording. Also, pre-testing of the questionnaires helped the researcher to estimate the time required for completion of the main survey.

Therefore, prior to commencing phase one, a pilot was completed to ensure that the survey was valid to use in Libya. This was done through a pre-test on a small group of health care workers in Libyan hospitals (who would not be recruited to the main study). The results of the pre-test showed that, overall, the questionnaire was answered consistently. So, the researcher considered that the questionnaire was applicable and understandable to use in the Libyan context. Therefore, no modifications were needed to the survey questions, the one exception being the need to exclude some information related to the section for staff positions, as certain jobs did not exist in Libyan hospitals, such as Occupational or Speech Therapist. Also, nursing roles requiring the qualifications of licensed practical nurse (LPN)

and licensed vocational nurse (LVN) were removed from the questionnaire as the qualifications are not recognised in Libya.

4.6.5 Inclusion and exclusion criteria

The participants had to be health care workers or health care managers in hospitals. The study involved all health care workers whether they are qualified or not. All clinical staff were targeted without taking into account their grade or position. Additionally, the study selected health care workers, who work full time or part time. The study included non-Libyan health care workers.

Staff who did not give their consent, or who did not have direct impact on safety of patients in their work were excluded from the study. For example those workers who were working outside the clinical field such as driver gardeners, gatekeepers and cleaners were not intend to take part in the study. Managers who undertake pure administrative duties that are not related to the medical administration were also excluded. Health care workers with less than one year experience of working in health care were excluded from the study.

4.6.6 Sampling

In phase 1 a stratified random sampling approach was used as the participants come from more than one discipline (Law et al., 2008). The procedures of study sampling were put in place to achieve the requirements of the data collection strategy. The sample was selected to be a representative of the whole population of hospital workers in the 3 hospital settings. (Linda, 1994; Bowling, 2002& Bryman, 2012). In phase 1 a stratified random sample was selected to help the study to have a categorised sampling frame of various strata of participants, before selecting the sample (Alston & Bowles, 2003). This sampling method

helps to obtain different perspectives and experiences from workers from various healthcare disciplines with regard to patient safety culture.

Therefore, a stratified sampling approach was selected randomly from different workers (i.e. Doctors, Nurses, Technicians, Pharmacists and Managers) from various units across the three hospitals. This was undertaken to involve a sample to be representative of staff from all the multi-professional groups of health care workers. It was also helped to ensure that each group was represented proportionate to their numbers in the overall population.

Firstly, this was done by determining the sample frame from a list of names given by the hospital information offices, so that the total number of health care workers, working in the three hospitals at the time of the study, could be established. The total number was 1200 health workers and a calculation was done to establish that the minimum sample size (SS) ought to be 300; this was based on guidelines provided by Ary et al. (2006) for determining a sample size through the use of a formula for $\pm 5\%$ margin of error, at 95% confidence level, for a hypothesized population proportion as follows:

$$\text{Sample size} = \frac{N}{1+N(e)^2} \quad SS = \frac{(1200)}{1+3} = 300$$

Secondly, the sample frame was classified according to the type of profession and number of individuals in each professional group of Doctors, Nurses, Technicians, Pharmacists and Managers in each of the three hospitals. See table 4.3 which shows the population of the study, giving details of the total number of health care workers in the 3 Hospitals.

Table 4.3 shows classification of population under study in three hospitals

Health care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total
Hospital A	90	168	100	6	5	369
Hospital B	80	173	58	6	5	322
Hospital C	110	170	218	6	5	509
Total	280	511	376	18	15	1200
Percentage	23.3%	42.6%	31.3%	1.5%	1.3%	100%

Population sample: 1200

The size of the study sample was 478 health care workers. The sample was selected randomly from a list of names of health care workers provided by the hospitals administration from the total number of health care workers who were working at the three hospitals. The sample was selected by taking 40% from each type category of health professional and managers in each of the 3 hospitals. A 40% sample size was selected to take account of the professional groups in which there were small numbers of staff. See Table 4.4.

Table 4.4 Distribution of the study sample from three hospitals

Health care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total
Hospital A	36	67	40	2	2	147
Hospital B	32	69	23	2	2	128
Hospital C	44	68	87	2	2	203
Total of the sample	112	204	150	6	6	478
Percentage	23.4%	42.6%	31.4%	1.3%	1.3%	100%

Study sample: 478

4.6.7 Data collection methods:

There are three main classifications for questionnaires: the face-to-face questionnaire; the self-administered questionnaire; and the web-based questionnaire (Brace, 2004 & Denscombe, 2007). The study used a self-administered questionnaire because of a number of perceived advantages. Firstly, it was easy to distribute the questionnaires to the participants. Secondly, it gave the researcher the chance to introduce the topic of the research to the key personnel so that they could encourage staff to participate and giving honest, informed answers. A third advantage of using a hand-delivered, self-administered questionnaire, in the context of Libya, was that it avoided reliance upon a poor mail service and because the lack of communication infrastructure made web-based questionnaires difficult (Neuman, 2007).

There is a drawback of a self-administered questionnaire, however; organisations, such as hospitals, are busy places with workers that are often unable or unwilling to dedicate the time of the organisation to the collection of data (Bernard, 2000). The researcher, therefore, ensured two weeks was given to healthcare workers, i.e. a period of time that included two weekends, so that there was ample time to complete the questionnaires at home, or when they had free time at work.

The procedure of data collection was started by the researcher contacting every Head of Department of the three hospitals and forwarding copies of questionnaires to them so that they could distribute them to their staff. Information about the study was also provided with the intention of addressing any queries from participants. The questionnaires together with the consent form, participant information sheet, and a return envelope were placed in a single envelope for distribution to each of the participants. Four hundred and seventy eight questionnaires were distributed across different departments in the three hospitals. A

reminder was sent to all participants after two weeks; any potential participants who had failed to return a completed questionnaire within the initial 2 week period were, thereby, given a further week to submit.

4.6.8 Response rate:

Of the 478 questionnaires that were forwarded to the participants, 368 (76%) were returned. Of the 368 that were returned, 22 were incomplete and hence the 346 (72%) questionnaires that were fully completed were used for the study. There are a number of reasons that could explain the good response rate. These are: (1) Sufficient time was given to the collection of the data; (2) The participants were informed and given assurance about confidentiality of the study; (3) Advanced notices were given to the participants indicating that they have been selected as participants for the study. (4) All health care workers were willing to participate in the study, because they thought that the topic was an important one that needs addressing in Libyan hospitals. (5) The researcher explained simply and clearly the objectives and the importance of the patient safety topic. Also, the questionnaire layout was well organised and was not long (Wilkinson & Birmingham, 2003). (6) There are certain cultural factors among Libyan people, particularly within the cities of the three hospitals under study that raised the likeliness of participation in the questionnaire; very strong social and family loyalties within the community meant that any request for cooperation was likely to be responded to favourably.

However, the response rate was different among the different disciplines. For example doctors had the highest response rate compared to other health care groups, whilst the nurses and technicians had a poor response rate, possibly because of the overload of works on them. See Table 4.5 below.

Table 4.5 Response rate of the health care workers

Health care workers	Doctors	Nurses	Technicians	Pharmacist	Managers	Total
Sample selected	112	204	150	6	6	478
Participant	108	139	87	6	6	346
Response rate	96.4%	68.1%	58.0%	100%	100%	72%

4.6.9 Data analysis:

In order to analyse the data, a number of statistical methods were employed. Firstly, AHRQ guidelines which introduced by Nieva & Sorra (2004) were adopted for the analysis and interpretation of the perceptions of respondents in relation to composites for patient safety cultural dimensions. In following these guidelines, the highest response categories in the various questionnaire sections for positively worded responses were combined, i.e. 'strongly agree' and 'agree', or 'most of the time' and 'always'. Likewise, the lowest response categories in the various sections for reverse worded items were also combined, i.e. 'strongly disagree', 'disagree', or 'never' and 'rarely', with it being carefully noted that they represented a positive response. Following this, calculation was undertaken of the percent frequency of each questionnaire item and dimension, with higher scores reflecting attitudes towards patient safety that were more positive. The AHRQ guidelines (Nieva & Sorra, 2004) define the strengths of patient safety dimensions as being reflected in items with a response rate of 75%, and those items and dimensions of 50% or less were considered as areas that required further attention and improvement. See Chapter 5, section 5.2, for further details of how the data was analysed.

4.7 Phase 2: Qualitative research

It has been agreed that qualitative research can support quantitative research data by meaningfully reflecting the social context of participants (Bowling, 2002). The second phase used a qualitative design and was conducted from July 2011 to January 2012. Qualitative research has an emphasis upon words within the data collection rather than numbers to explore the phenomenon of the study (Collis & Hussey, 2003; Bryman, 2012). The study used semi-structured interviews to explore phase one findings in more depth by identifying the factors that had an effect upon patient safety culture in Libyan hospitals. The interview was selected as a research method as it can help the researcher to gain access to the perceptions and understandings of the participants and to investigate how their daily lives are structured and given meaning (Berg, 2007; Creswell & Clark, 2007).

The study involved semi-structured interviews with 27 participants. These were conducted as face to face interviews but due to the political unrest at the time of the research some email interviews were also undertaken. The intention of the interviews was to explore in-depth issues that arose in the initial questionnaire survey and to reveal additional factors that may not have been revealed through the quantitative survey. Increasingly, sociologists argue that the experiences of people are subjective and complex and need to be seen as located within particular historical and social environments; the behaviour of the subject is considered as more personal rather than as being determined by some singular, objective, external reality (Silverman, 2013; Collis & Hussey, 2003).

For that reason, Phase 2 adopted the research philosophy of interpretivism, often associated with phenomenology. It used the Interpretative Phenomenological Analysis (IPA) which was originally introduced by Martin Heidegger. It built upon the work of

Husserl and it took the perspective that preconceptions cannot be completely put aside (Heidegger, 1962; Hitzler & Eberle, 2004).

Instead, it was considered that the experiences of the researcher were used for the interpretation of the experiences of others. Such a perspective became known as the hermeneutic tradition within phenomenology (Packer, 1985; Wall et al., 2004 & Bradbury-Jones et al., 2009). For Heidegger, the separation of an individual from their context was unnecessary; indeed, interpretation of the history and background of a person was considered as vital for a phenomenologist. He rejected the separation of a person from their world that had been proposed by Husserl, and believed that prejudices and everyday lived experience are key parts of our 'being-in-the-world' (Dreyfus, 1991). Heidegger believed that the sense that is made of the world, and its practices and relationships, is derived from the unique manner of 'being-in-the-world' of the interpreter and is best studied using hermeneutic methods (Heidegger, 1962; Racher & Robinson, 2003).

Based on the aforementioned discussion, as the socially shared experience of the health care workers under study, it was decided to use an interpretive phenomenological analysis for the second phase. The justification behind adoption of the IPA approach is that it is considered suitable when the researcher is trying to understand how participants perceive the particular situation they are facing, and how they are making sense of their personal and social world (Smith, 2008). Therefore, the researcher chose this approach as it was believed that the meaning that healthcare workers attached to events arose from their interactions as workers in the three hospitals. In keeping with the phenomenological perspective of Heidegger, the researcher believed that patient safety could not be assessed by separating the participants from their work experience or the researcher from his previous experiences. As such, the interpretations of health care workers ought not to be

considered as individualistic but due to the processes and social interactions between them as social actors (Willig, 2008).

Furthermore, IPA was selected as a theoretical framework for the current study because it was an appropriate approach to meet the aim of the study, and IPA is commonly used with Phenomenology philosophy. IPA was considered to be a suitable approach because the findings of Phase 1 generated only descriptive information about patient safety culture which provided an overview of the situation rather than detailed understanding of such a complex and sensitive subject in the Libyan context.

IPA was used as it focuses on the interpretation more than description of a phenomenon. This approach was also considered to be helpful in exploring the reasons that lead to poor safety culture in the 3 hospitals as IPA gives the researcher an access to participants' world and lived experience (Smith, 2008).

Other potential theoretical approaches, such as ground theory and ethnography, were not chosen for this research. The reason that grounded theory was not selected was because it seeks to construct concepts and produce theory from data without going to the field of the study to answer research questions (Charmaz, 2014). Grounded theory was not considered suitable for the present study as it is concerned with how phenomena are a reflection of various social processes; the IPA approach as used in this study, on the other hand, had a more relevant focus upon the essential qualities or natures of phenomena themselves (Willig, 2013). Also, grounded theory was dismissed because it requires starting with no assumptions and because it is expected to generate theory rather than start with theory (Rennie & Phillips, 1988) whilst, the current study used the predesigned questionnaire in phase 1.

Furthermore, the present study was trying to move from a general overview of patient safety to explore specific interpretations and explanations of patient safety (the survey to the interviews), and grounded theory takes a different approach whereby it seeks to develop a general theory from a specific situation. (Speziale et al., 2011). Moreover, in a mixed methods study it would be expected that the study would commence with a grounded theory approach and then progress to exploring the application of the generated theory (specific to general). However, this study undertook the opposite approach to this, working from general to specific concepts.

An ethnographic approach, however, is similar to an interpretive phenomenological approach in that it explores the perceptions and behaviours of people; also both of these approaches use the same forms of data collection, using interviews with open ended and structured questions (Maggs-Rapport, 1999). However, ethnography concentrates on the views of people or the values of a particular culture with the aim of describing the cultural knowledge of participants. On the other hand, interpretive phenomenology tries to reveal meanings that lie behind phenomena, through study of the lived experience of participants and interpretation of their narratives (Sorrell & Redmond 1995). Theoretical ethnographic approaches need long periods for observation and engagement with participants (Reeves et al., 2008). As such, ethnography was neither suitable nor practical for the current study, given the timescale and the research settings. As the study involved more than one type of health care worker group, as well as hospitals in different cities, it would have been difficult to adopt an ethnographic approach, especially given the political unrest and the potential for considerable delays in collecting qualitative data at that time.

4.7.1 Aim of Phase 2: qualitative research

To gain an in-depth understanding of the factors that affect patient safety culture in Libyan hospitals that emerged from the first phase of the study. Thus a series of research questions were posed to uncover some the issues from phase on that require further exploration.

4.7.2 The research questions:

- Why do health care workers perceive patient safety culture practice to be very weak in Libyan hospitals?
- What are the facilitators and barriers to good patient safety culture practice in Libyan hospitals?
- How do Libyan health care workers think that patient safety practice can be improved in Libyan hospital?
- Do Libyan hospitals have patient safety guidelines and regulations for their health care practice?

4.7.3 Sampling:

Qualitative researchers tend to select a non-probability procedure in their sampling strategy (Neuman, 2007). This kind of sampling is very helpful if the researcher is looking for information from targets subjects. There are four types of non-probability sampling: Firstly accidental sampling, secondly, Quota sampling, thirdly Purposive sampling and fourthly Snowball sampling (Bowling, 2002). Phase 2 used purposive sampling which is considered as a type of non-probability sampling in which the selection of the participants

to be involved in the study sample based on a specific purpose rather than randomly (Tashakkori & Teddlie, 2003).

Therefore, the justification for choosing this type of sampling was because the researcher had prior knowledge and information about the participants from the study first phase. Also, this type of sampling helps the researcher to get insights into the issues related to patient safety which was obtained from the findings of the first phase and they needed to be explained in more detail (Alston & Bowles, 2003).

Therefore, the sample involved health care workers who had participated in the first research phase and who held different perceptions of patient safety. Participants with the same experience were chosen so that the researcher could acquire a deep understanding of the research problem. As the participants came from a variety of professional backgrounds, and had different characteristics they were purposively selected. Different healthcare workers were chosen, such as doctors, nurses, pharmacists, technicians and managers, based in three different geographical locations.

Therefore, purposive sampling was undertaken, based on professional group, geographical location and the responses given in the study phase one (survey) to gain a sample of health care workers including nurses, doctors, technicians, pharmacists and managers who took part in the survey that formed the first study. This helped to ensure that the study sample had appropriate representation of each group of health care workers based on the skill mix and who had valuable knowledge to contribute to the study (Bowling, 2002).

The sample involved 2 participants from each of the 5 health care workers groups, whose overall perceptions of patient safety culture were either negative or positive; from each of

the three hospitals. A recruitment matrix was produced and used as a means of selecting participants who fulfil the inclusion criteria. An example matrix is shown in table (4.6) the selection of a sample of health care workers with either negative or positive perception toward Patient Safety practice in the three.

Table 4.6 sample selection of health care workers based on their perception toward patient safety

Heath care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total
Hospital A	+ -	+ -	+ -	+ -	+ -	10
Hospital B	+ -	+ -	+ -	+ -	+ -	10
Hospital C	+ -	+ -	+ -	+ -	+ -	10
Total of the sample	6	6	6	6	6	30

4.7.4 Data collection methods:

During the second phase of the study, the interview was used as the data collection technique, since it is considered to be one of the most powerful methods for qualitative research (Punch, 2005). There was greater confidence that such close communication with the participants during semi-structured interviews would yield benefits for the study, rather merely than using a survey (Creswell & Clark, 2007). The interview has been defined by Hussey & Hussey (1997) as a data collection method where participants are questioned to discover what they think, feel or do. The interview can be classified into three sorts: structured; unstructured; and semi-structured interviews (Alston & Bowles, 2003; Denscombe, 2007). Interviews that are standardized or structured are like questionnaires

that have been administered by a researcher with a predetermined list of questions for the participants (Sekaran, 2003).

This would not be ideal for the study because such an approach would have been similar to the survey data method which had less interaction with participants would only be suitable for broad, open-ended question. On the other hand, an unstructured interview is one that has no predetermined questions and is more informal, open and flexible and which lets the researcher explore an area of interest more deeply (Oppenheim, 2001). The disadvantage of this approach is that participants can move into territory that is of no relevance to the research questions. Neither, structured nor unstructured interviews, then, would have been suitable for the study as clarification was needed of certain issues that had been highlighted in Phase 1.

The semi-structured interview was the type used within the second phase for the gathering of more data from the various groups of healthcare workers. This was so that a deeper insight could be gained about the perceptions of the selected participants which contains the discussion about patient safety culture. Such semi-structured, non-standardised interviews are often used for qualitative research, so that an understanding can be gained of the perceptions of participants and the attachment that they may have towards certain events, phenomena or meanings (Berg, 2007). Semi-structured interview can cover an overall subject and ensure that interests are explored and certain issues, general themes and specific questions are pursued (Lee, 1999).

Any ambiguities, processes, complexities and contradictions that may be discovered along the way can be accommodated within a semi-structured. This type of interview can be expensive and time consuming (Bryan, 2012) however, within the second phase of this study, the number of participants was reasonably small and there were sufficient time and

resources. This interview type was chosen as the study did not involve the testing of a specific hypothesis, though enabled the answering of the question ‘why?’ in relation to the poor perception of patient safety practices in Libyan hospitals (David & Sutton, 2004; Saunders et al., 2009).

4.7.5 Data collection procedure:

There is no definitive calculation given by researchers for the sample size of the qualitative research (Creswell & Clark, 2007). Therefore, a decision was taken to interview 30 health care workers who had participated in the survey grouped according to profession and across departments in the three Libyan hospitals that were the subject of study one.

4.7.6 Interview questions:

The literature review provided useful information about patient safety culture concepts and dimensions within hospitals, however, this mainly focused on the situation in developed countries. The Phase 1 survey gave new information and indicated when further exploration was needed and so helped in the generation of an appropriate interview protocol related to the research objectives. The compiled interview question list was reviewed and discussed by the supervisory team, as well as with fellow Libyan PhD students who worked within the Libyan Hospitals. Suggested amendments enhanced the validity of the study and so, accordingly, the draft interview questions form was modified in readiness for the pilot study. Feedback received from the pilot interviews led to further modifications.

The interview questions were designed, essentially to gathering related to information related to aim and objectives that were set for qualitative study. Twelve dimensions of patient safety culture (Nieva & Sorra, 2004) were covered by probing interview questions that asked for information regarding the 'hows' and the 'whys' (Hardon,2011) behind their perceptions of patient safety culture. Efforts were to ensure that all the interview questions would encourage participants to give their views and opinions about the reasons that were behind the weakness of patient safety practice in Libya. From this information, a clear picture was built of practice within Libyan hospitals and an understanding gained of which factors were leading to poor patient safety practice. The interview guideline and final version is shown in Appendix (6).

During the interview period itself, the researcher was prepared with a list of the main issues and questions related to hospital patient safety culture, and were able to change the order of questions in response to how the interview was proceeding. As such, the researcher was afforded opportunities to probe for the opinions and views of the interviewee, and to explore new lines of inquiry that may not have been considered during the first phase of the study (Gray, 2009; Creswell & Clark, 2011).

Furthermore, the researcher used several techniques to get as much as from data through listening closely to the participants and not interrupting them. In addition, the researcher used probe questions in his inquiry and reworded the question in cases where the participants did not understand the questions (Denscombe, 2007). Moreover, the researcher tried to minimise bias during the interview question by beginning the interview with a neutral introduction of himself and the objectives of the research. The researcher tried to

avoid making any cues or signals that could have guided the participants towards expected answers (Miles & Huberman, 1994).

The style taken during the interview questioning was to move from the general to the specific. At the outset, the researcher established a rapport and developed a good relationship with the participants in a relaxed informal atmosphere (Liamputtong, 2008). As is part of Libyan culture, participants were invited to share a drink prior to the conducting of the interview. A suitable location and the time for the interviews were chosen by the participants to ensure they were available and comfortable. The participants were asked for their permission to record the face to face interview. Participants were offered the opportunity to take a break during the interview should they need one. A reminder of the location and the time of interview were sent to each participant a day before their interview.

4.7.7 The context of the data collection:

The plan for the data collection in Phase two was affected by unforeseen circumstances as Libya became one of the Arabic countries involved in the Arabic Spring that started in 2011. The Libyan revolution started on 15th February 2011 in Benghazi, in the Northeast of Libya, when the old Libyan dictatorship regime fired upon a demonstration against it, killing hundreds of people. The study setting was dramatically changed when the revolution became a military conflict between the forces of the old regime and the rebels and, therefore, the security situation became very dangerous and it was not possible due to undertake the planned face to face interviews. The initial intended start date for interviewing was in March 2011. The researcher was advised at a meeting with the

university research supervisory team, however, to postpone the data collection phase until the country was a safer place for conducting the study.

Five months later, the researcher and his supervisory team agreed that it was necessary to change the data collection approach for the second phase of the study from the conducting of face-to-face interviews to posting questions via email, to a selected sample of participants who had taken part in the quantitative Phase One of the study. The option of conducting interviews by phone had been discussed but it was discounted as the communication service between the UK and Libya was unreliable. The researcher was able to send the interview schedule as an attachment, which due to internet access at time was easier and more practical within the Libyan context than a web survey which needs to direct the participants to a certain website in order to answer a questionnaire (Bryman, 2012). The Ethics committee of the University was notified of this proposed change to the data collection approach by the researcher by email. For more detailed information about the ethical consideration. (See Chapter 4, section 4.8).

Following ethics committee approval, the researcher contacted a selected sample of 30 healthcare workers by email, via their email addresses that had been obtained from their personal information provided in their first phase consent forms. The researcher sent an invitation letter that informed participants that they had been selected as a sample to take part in the second phase of the study. In the email letter, the researcher explained that the data collection approach had been changed from face-to-face interviews to interview questions to be answered via email because of the political situation in the country at that time. The researcher sent email attachments with an information sheet, a consent form and a copy of the interview questions. The participants were asked to carefully read the information provided and to sign the consent form prior to their participation.

The researcher was aware of the limitation of data collection by email in terms of a lower response rate in comparison to interviews undertaken face-to-face (Bryman & Bell, 2011). To increase the response rate for the second phase, a reminder was sent, to those who had not completed the answers, two weeks after the initial mailing (Bryman, 2012).

The researcher received 27 complete responses and 3 were not returned. The researcher and the supervisory team reviewed the responses and selected 15 interviews that needed to be conducted again by face to face interview for further discussion and clarification. After the military conflict in Libya had ended, the security situation improved and flight services returned to normal. Therefore, the researcher returned to Libya to conduct face-to-face, semi-structured interviews with 15 out of those 27 participants. The same questions that had been used by email were posed in the individual face-to-face in-depth interviews. These were conducted in spoken Arabic, the native tongue of the participants. The researcher conducted one or two interviews every day, using both mornings and afternoons. Some days no interview was conducted due to the busy schedule of the specialist doctors who had less time available than other healthcare workers.

The interviews were conducted inside the hospitals at times and places that suited the interviewees. The interviews took between 1-2 hours, were audio recorded and then fully transcribed into written Arabic. The main themes of the interview addressed areas of weakness for the cultural dimensions of patient safety in Libya that were identified in the survey. Tables (4.7 to 4.9) show the numbers of participants selected from the various hospitals in the second phase.

Table 4.7 Number of participants who selected to answer interviews questions via email from the sample in each of the three hospitals.

Heath care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total
Hospital A	2	2	2	2	2	10
Hospital B	2	2	2	2	2	10
Hospital C	2	2	2	2	2	10
Total sample	6	6	6	6	6	30

Table 4.8 Number of participants who answered the interview questions via email in each of the three hospitals.

Heath care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total
Hospital A	2	2	2	1	2	9
Hospital B	2	2	2	1	1	8
Hospital C	2	2	2	2	2	10
Total sample	6	6	6	4	5	27

Table 4.9 Number of face-to-face interviews conducted with a selection of participants who had answered the interview questions by email.

Heath care workers	Doctors	Nurses	Technicians	Pharmacists	Managers	Total of interviews
Hospital A	1	1	1	1	1	5
Hospital B	1	1	1	1	1	5
Hospital C	1	1	1	1	1	5
Number of interviews	3	3	3	3	3	15

4.7.8 Qualitative data analysis:

An Interpretative Phenomenological Analysis (IPA) approach was used for the analysis of the collected data during the second Phase (Moustakas, 1994 & Smith, 1996). IPA was used to capture the complexity and richness of the perceptions and experiences of participants (Smith et al., 1999). IPA has the aim of providing a detailed exploration of how sense is made of social and personal worlds by study participants; as such, IPA studies focus upon events, states of being and the experiences of participants, and the meanings attached to them (Smith, 2008). IPA rather than a descriptive approach was appropriate because the study was not seeking to test a theory (Lopez, 2004).

The methodology of hermeneutics is, by definition, interpretive with an emphasis upon understanding context and the way in which language is used (Annells, 1996). Within a hermeneutic philosophy, it is expected that the researcher acknowledges their own biases and incorporates them within the research being undertaken; thus, new knowledge is brought about by reflexive interpretation. As such, within social sciences that adopt the philosophy of Heidegger and his student Gadamer, a better appreciation of the world is sought rather than a complete understanding of it (Palmer, 1969). The process of reflective interpretation can be considered, therefore, as involving the aesthetic and historic analyses and interpretations of underlying conditions that relate to experience, not just the description of that experience (Moustakas, 1994).

The rationale behind the adoption of IPA in this study was that it was considered a suitable approach that could help in figuring out how health care workers perceived their experiences related to patient safety culture and help the researcher make sense of that

personal experience (Smith, 2008). For more details about the qualitative data analysis steps (See Chapter 6, section 6.2).

4.7.9 Rigour

The interviews questions were written in the English language and then translated into Arabic language. The translation process was passed through several steps in which the researcher translated the first draft of interview questions from English into Arabic and then sent the English version to an expertise and legal translator of English language who works in the English department at a Libyan university to translate it into the Arabic language . The researcher then compared two versions and produced the final version which was agreed by the expert.

Data analysis was conducted in the language of the interviews (Arabic) to ensure trustworthiness (Guba & Lincoln,1989). The supervisor in Libya undertook an audit trail of the coding and analysis process to ensure that the final framework fully captured the responses of participants. Furthermore, measures were taken in the study to generate valid data by involving independent individuals in group discussion who were bilingual (English, Arabic) with good skills in qualitative analysis, to identify the differences and similarities in the categorisation of themes and to help in establishing the coding and categorisation procedures. All data extracts and analyses were then translated into English for further rigorous checks of the data analysis and data categorisation processes which were completed by the LJMU supervisory team.

Furthermore a sample of the interviews were translated into English (see appendix 16) and taken for a trail check by independence body from LJMU staff member to review data analysis.

Of the 30 interviews that were sent via email to the selected sample of participants, 27 were returned and 3 were not returned. There were a number of reasons why in the second phase participants were well disposed to take in the study. A political regime change acted as a major contextual issue for the study, with the revolution erupting prior to the commencement of the second phase data collection. This event completely changed the willingness of people had to speak out. With no more fear of the old dictatorship regime, participants expressed themselves more freely and naturally than they had in phase 1. It is likely that the participants in the first phase chose to give neutral answers and were cautious in their answers due to the oppressive regime in which they worked (See Chapter 5, Section 5.3).

However, in the face-to-face interviews during the second phase, the researcher found that, whilst still in a revolutionary context, participants spoke about many different matters linked to patient safety and to wider, related, political considerations. Regarding the collection of data within the particular atmosphere and context of Libya, saturation point was reached whereby the researcher was not bringing forth any new information or relevant information about patient safety in the Libyan hospitals (Saumure & Given, 2008). It was considered that the data collected was providing a comprehensive picture of the patient safety situation.

Thus this study added to the existence of knowledge which was obtained from phase one and that identified ten areas of weakness in patient safety culture. However, this second phase gave richer information and provides further insight into the views and opinions of health care workers. It elicited the main factors that make patient safety practice very poor in Libyan hospitals and revealed how workers believe that patient safety could be improved in Libya. It was anticipated that the findings of this study would ‘open the eyes’

of many Libyan health managers and policy makers to put patient safety issues as a priority on their agenda.

4.8 Ethical consideration:

The study obtained two ethical approvals from Liverpool John Moores University Research Ethics Committee (REC); one for the first phase (quantitative approach), under the reference number 10/HEA/019, and another for the second phase (qualitative study), under reference number 11/HEA/005 (See appendices 7 & 8). Furthermore, the researcher was given permission to conduct the study from the central directors of the 3 selected teaching hospitals (See appendices 11, 12 & 13).

Therefore, the researcher explained to the participants that their participation in the study was voluntary and that they did not have to take part. However, the researcher told the participants that their participation would be appreciated as it would contribute to an exploration of the patient safety situation in Libyan hospitals. Participants were told that they could withdraw from the study at any time without giving any recrimination. Individual participants were asked to sign a consent form before their participation (See appendix 2&3) As the data collection approach of Phase 2 had changed, as a result of the uprising, an ethical amendment was sought and obtained under the reference number 10/HEA/019 (see appendix 9).

During the research data collection, the concepts of anonymity and confidentiality were taken into consideration by the researcher. There is confusion and overlap with the meaning and use of these two concepts amongst many researchers (Scott, 2005 & Rogelberg et al., 2006). However, the concept of anonymity can be explained as a procedure that is used in research to assure that data and information obtained from participants cannot be attributed directly to individuals or acknowledge them, even by

investigators. The concept of confidentiality, on the other hand, can be defined by the measures that are put in place by investigators to assure that data used during the research stages are treated securely and protected from other people. Regarding the measure of anonymity, the study used an anonymous survey which did not include any personal information that could lead to identification of the participants by the researcher.

Furthermore, during the conducting of the interview, the participants were not asked to give their names whilst the interviews were being recorded nor in the answering of the interview questions via email. Such measures encouraged the participants to provide good quality information particularly in respect to their perceptions on sensitive issues (Ong & Weiss, 2000).

Moreover, further measures for anonymity were taken to protect the information related to participants. These measures included using a coding system for the participants so as to not show hospital names or participant identities during the data analysis, and not revealing their identity at any of the research stages so that it would be difficult to trace participants from the responses given.

In relation to the consideration of confidentiality, all hard copies of the surveys and interviews, as well as the interview recorder, were stored in a safe place in a locked cabinet. The entered data was encrypted and stored securely in the researcher's laptop computer which could only be accessed by using a private password. Data were coded and kept separately from the consent information to maintain anonymity. The data was only accessible to the research team and security was ensured through secure storage in the LJMU system computer which could only be accessed by using a private password. Data

were encrypted, sealed in a package and carried securely during transfer from Libya to the UK.

4.9 Summary

This methodology chapter discussed the positivistic and phenomenological research paradigms and justified the selection of philosophy that acted as a basis to the study. Furthermore, explanation was given for the chosen study design and the methods and the data collection and sampling procedures used to address the study aims and research questions. Amendments, considered necessary given the changing political circumstances in Libya were also highlighted. Finally, explanation was given of the ethical considerations.

Chapter 5: Quantitative findings

5.1. Introduction:

Phase 1

This chapter presents the quantitative findings from the questionnaire used in phase 1 of the study. The questionnaire was administered during the days of the former political regime in Libya when Gaddafi was in power and before the Libyan revolution of February 2011. The quantitative findings were obtained from a sample of health care workers from different Libyan hospitals. The aim was to investigate their perceptions about patient safety culture dimensions and to identify the factors that enhanced and inhibited patient safety practice in their respective hospitals. The sample consisted of 346 healthcare workers who were recruited from 3 hospitals which were located in the Northeast of Libya; see Chapter 4, under section of 4.7.4 for more detailed information.

5.2 Questionnaires analysis

The SPSS programme (version 17) was used for data entry and analysis of the quantitative data generated from Phase 1 of the research. The data took the form of descriptive statistics (frequency of positive response and their percentages) of 12 patient safety culture dimensions measured on five health care workers groups from three different hospitals. The raw data was analysed in a number of different ways. Firstly, composite frequencies of positive response were calculated by grouping the 42 survey items into 12 patient safety culture dimensions. Each dimension included 3 or 4 survey items, which were used for the calculation of one overall frequency for each dimension.

Secondly, composition of the average positive score for all survey items in every dimension was calculated by adding the total number of positive responses on items (questions) within a composite (numerator) and dividing this by the total number of responses to all items (denominator).

In addition, a one way ANOVA test was used to compare and measure whether the mean scores of the five health care workers groups and hospitals significantly differed from each other with regard to patient safety culture dimensions (Sekaran,2003). Moreover, the study used the Post hoc test to indicate which health care groups and hospitals differed significantly from others in relation to their mean scores (Field,2009). Multiple regressions were also conducted to examine the predictors of 9 patient safety culture dimensions which were used as dependent variables, whilst the hospitals were used as predictor variables. Finally, a correlation test was conducted to examine the relationships between the patient safety culture dimensions.

5.3 The questionnaire findings

The findings of the questionnaire provide descriptive information and give a general picture about patient safety culture in Libyan hospitals. These findings are presented in the tables below:

Table 5.1 Health Care Workers Characteristics

Health Care Workers	Frequency	Percentage
Nurse	129	37.3
Doctor	88	25.4
Technician	87	25.1
Medical specialist	20	5.8
Patient Care Assistant	10	2.9
Pharmacist	6	1.7

Manager	6	1.7
Total	346	100.0

The majority of health care workers who participated in the study were Nurses (n= 129 (37.3%). Pharmacists and Managers each comprised 1.7% of the total sample, which is representative of the small numbers of professionals from these groups who are employed in the 3 Hospitals. There were a similar number of Doctors and Technicians at 25.4% and 25.1% of the whole sample respectively. Specialists and Patient Care Assistants had percentages of 5.8% and 2.9% respectively.

Table 5.2 Health care workers and work areas

Work area	Frequency	Percentage
Surgery	60	17.3%
Medicine	45	13.0%
Obstetrics	42	12.1%
Paediatrics	41	11.8%
Laboratory	38	11.0%
Radiology	20	5.8%
Ophthalmology	19	5.5%
Anaesthesiology	16	4.6%
Emergency	10	2.9 %
Orthopaedic	8	2.3%
Pharmacy	8	2.3%
Rehabilitation	8	2.3%
Intensive care unit	6	1.7%
Others	25	7.2%
Total	346	100.0

Table 5.2 gives a breakdown of the work areas of the participants. The largest proportion of the participants worked in surgical departments with n= 60 (17.3%), while the lowest number of participants were from the intensive care department with n=6 (1.7%). These percentages are to be expected since the surgical units employ the largest number of people whilst intensive care units are relatively small departments with limited numbers of staff. The ‘other’ work areas which comprised 7.25% of the sample were from urology, Ear nose and throat (ENT), dermatology ,and administration departments with n= 25 (7.2%).

Based on the guidelines of the survey to present the results more clearly, the answers of the 2 lowest response categories (Strongly Disagree/Disagree and Never/Rarely) have been combined and the 2 highest response categories (Strongly Agree/Agree and Most of the time/Always) have also been combined to make a more clear distinction between positive and negative perceptions (Nieva & Sorra, 2004). Therefore, for the purpose of this study, responses that scored 3.6 to 5 were categorised as positive, whilst responses scoring 2.5 to 3.5 were categorised as neither positive nor negative, and responses of 1 to 2.4 were categorised as negative. The following results show the frequency of positive (Strongly Agree/Agree) and negative answers (Strongly Disagree/Disagree) of participants on each of the questionnaire items.

Table 5.3 Health care workers overall perceptions towards patient safety

Answer	Frequency	Percentage
Positive	71	20.5
Negative	64	18.5
Neutral	210	60.7
Total	345	99.7
Missing System	1	3
Total	346	100.0

Table 5.3 Only 71 (20.5%) of participants had a positive perception of patient safety in hospitals. On the other hand, 64 (18.5%) of health care workers had a negative perception of the overall level of safety in their hospital, which may indicate their belief that the levels of prevention are unacceptable. Two hundred and ten (60.7%) of the participants gave neither a positive nor a negative answer relating to their perception of patient safety.

Table 5.4 Reporting of adverse events by health care workers

Answer	Frequency	Percentage
Negative	160	46.2
Positive	99	28.6
Neutral	87	25.1
Total	346	100.0

Table 5.4 reveals that the reporting of adverse events by health care workers in their hospitals was at a very low level. Only ninety-nine (28%) of the health care workers indicated that they had reported mistakes when they occurred, whilst a considerably larger number of health care workers, i.e. 160 (46%), responded that, when an error had occurred, they had not reported it. Eighty-seven (25%) of participants reported that they may or sometimes have reported adverse events. For further clarification on number of adverse event that had been reported within a year see figure 5.1

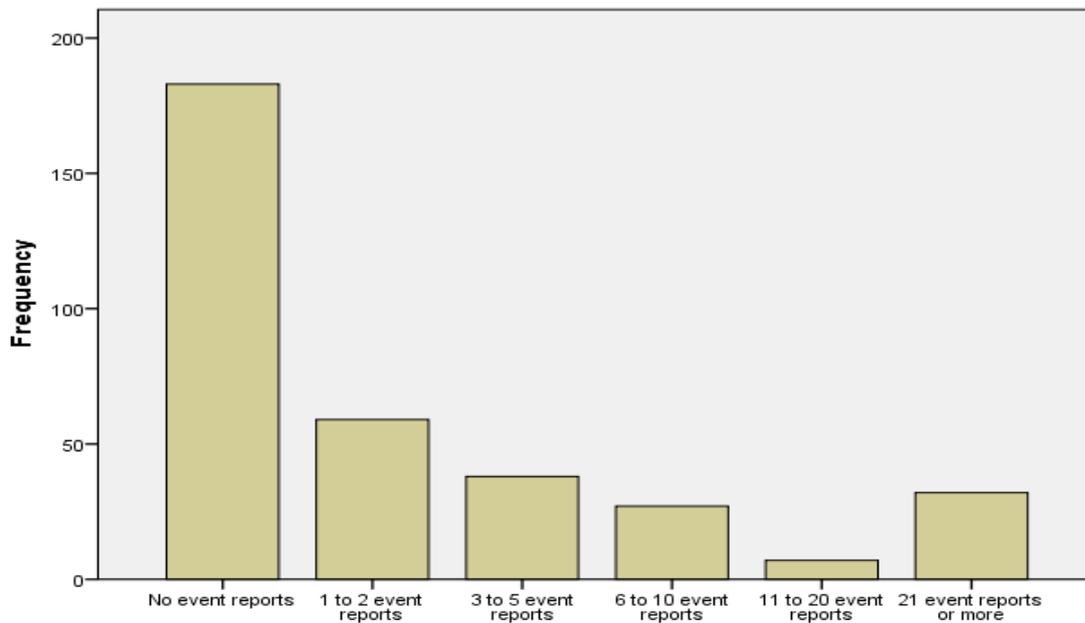


Figure (5.1) gives more detail of the number of events that were reported by health care workers in the previous 12 months.

Table 5.5 Managers' support for patient safety

Answer	Frequency	Percentage
Positive	73	21.1
Negative	64	18.5
Neutral	209	60.4
Total	346	100.0

Table 5.5 reports how managers were perceived to deal with their health care workers in relation patient safety issues. Seventy-three (21%) of health care workers had a positive experience with their managers in patient safety practice, while sixty-four (18.5%) of health care workers gave negative responses on their experience with their managers or supervisors. Neutral responses formed the remaining 209 (60.4%) of the responses.

Table 5.6 Learning environment in hospitals

Answer	Frequency	Percentage
Positive	110	31.8
Negative	82	23.7
Neutral	154	44.5
Total	346	100.0

Table 5.6 shows that 110 (31.8%) health care workers responded positively that they were actively doing work and learned from their mistakes to improve patient safety and 82 (23.7%) gave a negative answer. Nearly half, 154 (44.5%), of the respondents were neutral in their answers.

Table 5.7 Teamwork within hospital departments

Answer	Frequency	Percentage
Positive	170	49.1
Negative	61	17.6
Neutral	115	33.2
Total	346	100.0

Table 5.7 shows the perception of teamwork between staff within departments. One hundred and seventy (49.1%) of health care workers agreed that work was done through teamwork and that staff supported each other when work needed to be done quickly. The data also shows that 61 (17.6%) of the participants gave a negative answer with regard to their perceptions of teamwork within their hospital. Those that answered with a neutral answer totalled 115 (33.2%).

Table 5.8 Communication and Openness within hospitals

Answer	Frequency	Percentage
Positive	122	35.3
Negative	106	30.6
Neutral	116	33.5
Total	344	99.4
Missing System	2	6
Total	346	100.0

The data in Table 5.8 demonstrates that only 122 (35.3%) of the health care workers were positive about the state of communication and openness between them in discussion and spoke up freely about patient safety issues. Neutral and negative answers were 116 (33.5%) and 106 (30.6%) and respectively.

Table 5.9 Feedback and Communication about Error by managers

Answer	Frequency	Percentage
Positive	116	33.5
Negative	113	32.7
Neutral	117	33.8
Total	346	100.0

Table 5.9 shows that 116 (33.5%) participants answered positively that their feedback and suggestions about patient safety matters were considered in workplace changes designed to prevent or reduce future medical errors from happening. However, 113 (32.7 %) participants answered negatively as they did not receive feedback on their events reports and suggestions related to safety issues. The number of participants who were neutral in their answer was 117 (33.8%).

Table 5.10 Non-punitive response to Errors

Answer	Frequency	Percentage
Negative	166	48.0
Positive	29	8.4
Neutral	151	43.6
Total	346	100.0

It can be seen from the data Table 5.10 that only 29 (8.4%) responded positively that a non-punitive and blame free environment for dealing with errors was prevalent in Libyan hospital work. A considerable number (166/346-48%) of respondents indicated that a punitive approach and a culture of blame towards health care providers were the most expected actions from health managers when patient safety problems were reported. The number of respondents who gave neutral answers was 151 (43.6%).

Table 5.11 Staffing in hospitals

Answer	Frequency	Percentage
Positive	71	20.5
Negative	57	16.5
Neutral	218	63.0
Total	346	100.0

The data in Table 5.11 show the availability of health care workers in hospitals to manage the workload. Seventy-one (20.5%) of the participants were positive about the availability of health care providers to handle work whereas, 57 (16.5%) indicated that there were insufficient staff to deal with the workload. The participants who gave neither a positive nor a negative answer was 218 (63%).

Table 5.12 Hospital's management support for patient safety

Answer	Frequency	Percentage
Negative	135	39.0
Positive	72	20.8
Neutral	139	40.2
Total	346	100.0

Table 5.12 presents the perception of health care workers concerning the level of support and interest shown by their hospital management in dealing with, and acting on patient safety issues. Only a small number of respondents 72 (20.8%) answered positively that their hospitals management was supportive and put patient safety as a priority. Many responses held either negative or ambivalent perceptions of management support at 135 (39.0%) and 139 (40.2%), respectively.

Table 5.13 Teamwork across Hospitals

Answer	Frequency	Percentage
Positive	120	34.7
Negative	75	21.7
Neutral	151	43.6
Total	346	100.0

The data in the Table 5.13 demonstrates views about whether teamwork and coordination occurred between hospital departments to ensure effective and safe patient care. One hundred and twenty (34.7%) of the health care workers agreed that work across hospital departments was done using a teamwork approach. The data also show that 75 (21.7%) of

the participants gave a negative answer with regard to their perceptions of teamwork across their hospital. Those who answered neutrally totalled 151 (43.6%).

Table 5.14 Handover and patient safety

Answer	Frequency	Percentage
Negative	94	27.2
Positive	83	24.0
Neutral	169	48.8
Total	346	100.0

Table 5.14 reports the perception of the health care workers on the effect of the medical shift changes on patient safety. Eighty three (24%) of the participants agreed that changing medical shifts and patient transition between hospital departments had a negative effect on patient safety. However, 94 (27.2%) answered that hospital medical shift changes had no effect on patient safety. The number of participants who answered neutrally was 169 (48.8%).

Table 5.15 Patient Safety Grade in three hospitals

Grade	Frequency	Percentage
Excellent	20	5.8
Very Good	124	35.8
Acceptable	138	39.9
Poor	50	14.5
Failing	14	4.0
Total	346	100.0

Table 5.15 shows respondents' opinions towards the level of patient safety in their respective hospitals. The majority 138 (39.9%) of respondents indicated that they

perceived patient safety to be at an acceptable level, whereas 124 (35.8 %) of the respondents believed patient safety was at a very good level and 20 (5.8%) rated it as excellent. Between 50 (14.5%) and 14 (4.0%) respectively rated the safety levels in their hospitals as either poor or failing.

Table 5.16 Overall of responses on Patient Safety Culture Dimensions

<u>Dimension</u>	<u>Strongly Disagree & Disagree</u> No. (%)	<u>Neutral</u> No. (%)	<u>Strongly Agree/ Agree</u> No (%)
Frequency of Reporting	160(46.2)	87 (25.1)	99 (28.6)
Overall Perception of Safety	64 (18.5)	210(60.0)	71 (20.5)
Managers' Expectations	64 (18.5)	209 (60.4)	73 (21.1)
Organisational Learning	82 (23.7)	154 (44.5)	110 (31.8)
Teamwork within Hospital	61 (17.6)	115(33.2)	170 (49.1)
Communication Openness	106(30.6)	116(33.5)	122 (35.3)
Feedback about error	113(32.7)	117 (33.8)	116 (33.5)
Non- Punitive to response	166(48.0)	151(34.6)	29 (8.4)
Staffing	57 (16.0)	218(63.0)	71 (20.5)
Management support for patient safety	135(39.0)	139(40.2)	72 (20.8)
Teamwork across Hospital	75 (21.7)	151(43.6)	75 (21.7)
Hand over and Transition	94 (27.2)	169 (48.8)	83 (24.0)

The data in tables 5.16 summarises all answers from the respondents for each of the items that are presented in relation to overall patient safety.

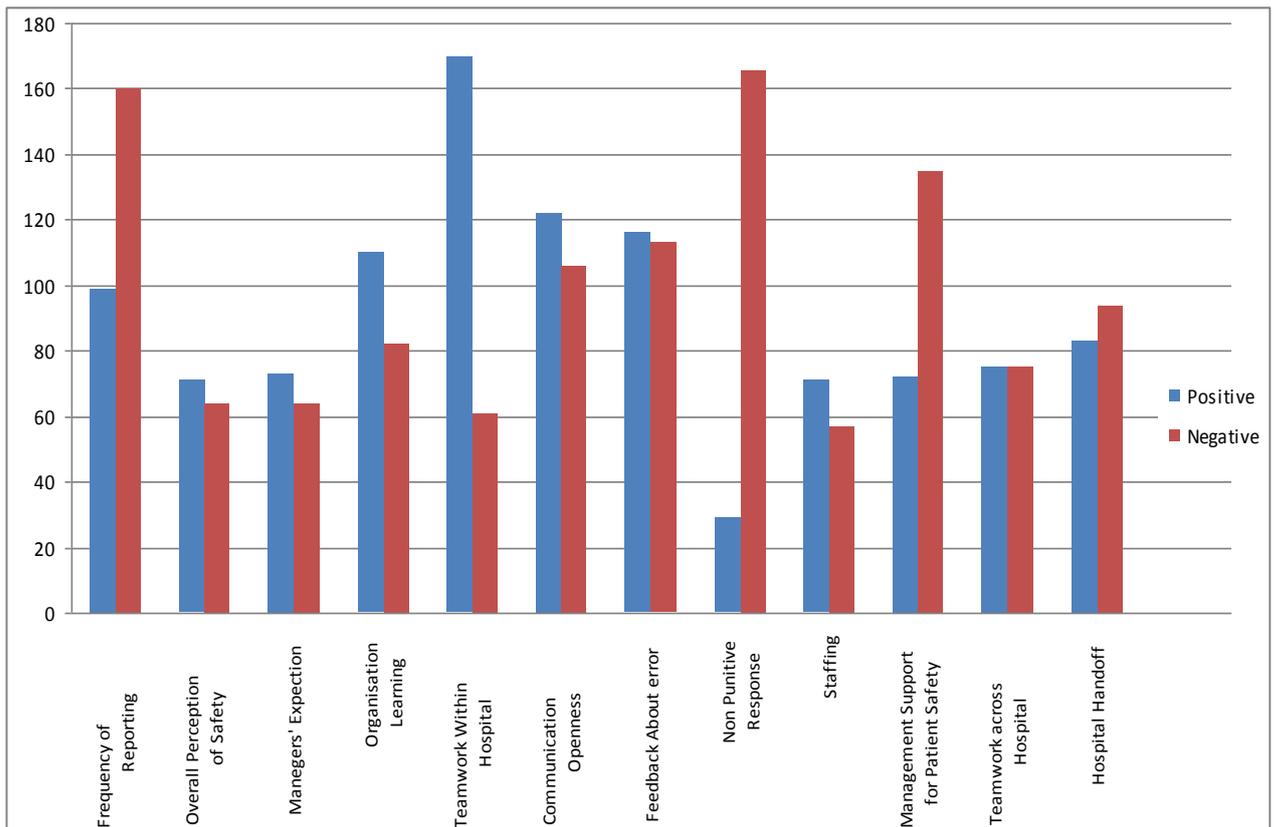


Figure (5.2) Respondents' positive and negative answer on items of Patient Safety Culture

Figure (5.2) shows the frequency of positive (strongly agree, agree) and negative answers (strongly disagree, disagree) of participants on each of the questionnaire items. The data show that 170 (49.1%) of participants agreed that the health care duties within their hospital were done by teamwork. This was followed by 122 (35.3%) positive responses concerning communication and openness between health care workers, 116(33.5%) positive responses concerning feedback to errors, and 110 (31.8%) positive responses in relation to support for process of learning from mistakes to prevent reoccurrence and improve their performance. However, only a minority of 29 (8.4%) respondents were positive about non-punitive responses from managers to health care providers when mistakes occurred. Low positive answers were also given by participants for the overall

perception of safety 71(20.5%) and the sufficiency of health care providers to provide health care for patients (71 -20.5%) (See the table 5.17).

Table 5.17 Percentage of the positive answers on the Patient Safety Culture Dimensions.

<u>Dimension</u>	<u>Percentage of positive response</u>
Frequency of Reporting	30.53%
Overall Perception of Safety	44.29%
Managers' Expectations	44.94%
Organisational Learning	54.04%
Teamwork within Hospital	59.75%
Communication Openness	35.74%
Feedback about error	35.74%
Non Punitive response	31.11%
Staffing	50.28%
Management support for patient safety	42.87%
Teamwork across Hospital	46.45%
Hospital hand over	39.08%

Table 5.17 gives the average of the positive responses on each patient safety dimension which was measured by calculating the percentage of positive response on each item that is in the composite. The average of positive response of the patient safety dimensions ranged from the lower rating of 30.53%, for the dimension of the frequency of reporting errors, to the highest of 59.75%, for teamwork within hospitals. The overall perception of safety and managers' expectations dimensions are almost the same with 44.29% and 44.94% respectively. Moreover, communication openness and feedback about errors are exactly the same with 35.74%. Furthermore, the non-punitive response to errors was low with 31%.

Further to these descriptive findings, additional statistical analysis was conducted to make comparisons between groups. Since the one-way ANOVA test measures mean scores of two or more groups (Sekaran, 2003), and the study sample involved five health care

groups from three hospitals, the ANOVA test was used to examine whether the mean scores of the respondents differed significantly from each regarding perceptions about patient safety culture dimensions in the three Libyan hospitals. Furthermore, post hoc tests were utilised to indicate which groups of health care worker, departments, and hospitals were significantly different from others in respect to the mean scores for each item (Field, 2009).

Table 5.18 Patient safety culture dimensions in work areas.

Dimension	F	Sig
Frequency of event reporting	2.151	.011*
Overall perception of safety	1.550	.098
Manager expectation	1.011	.440
Organisation learning	.793	.667
Team work within hospital	.887	.567
Communication and openness	2.511	.003*
Feedback to errors	1.086	.370
No punitive response to errors	.891	.562
Staffing	.965	.486
Management support for patient safety	1.042	.410
Team work across hospital	1.278	.224
Handover and transition	2.216	.009*

***Represents significant result**

Table 5.18 shows the results of a one-way ANOVA conducted on the 12 patient safety culture dimensions within different work areas. The test revealed three significant results amongst the dimensions; namely frequency of event reporting with (F, 2.151, sig .011), communication, and openness (F, 2.511, sig .003) and handover and transition with (F, 2.216, sig .009). Further one-way ANOVA and Tukey tests (Post hoc test) were conducted

for those three significant results to identify in which work areas the differences occurred as shown in tables 5.19 to 5.21 .

Table 5.19 Frequency of events reporting in work areas

<u>Dimension</u>	<u>Statistical test</u>	<u>Hospitals' Departments</u>			<u>F</u>	<u>P</u>
		<u>Radiology</u>	<u>Surgical</u>	<u>Obstetrics</u>		
Frequency of events reporting	Mean	1.97	3.09	3.07	2.15	0.01
	Sd	1.04	1.31	1.23		

In Table 5.19 a one-way ANOVA was conducted to identify differences between work areas and the frequency of events reporting. A significant difference was found ($F = 2.15$, $p 0.01$). Further analyses using the Tukey test (Post hoc test) was used at the second stage of the ANOVA. The purpose of the post hoc Tukey tests was to indicate which work areas differed significantly from others in respect to the mean. It showed that radiology departments (Mean = 1.97, sd = 1.04) were lower than both the surgical departments (Mean =3.09, sd =1.31) and the obstetric departments (Mean 3.07, sd = 1.23) in frequency of events reporting. This may indicate a greater inclination of health care workers in surgical departments to report their errors, when compared to those who worked in Radiology and Obstetrics departments, or more errors may have actually occurred within surgical departments due to the intense of the work.

Table 5.20 Communication and openness in work areas

<u>Dimension</u>	<u>Statistical test</u>	<u>Hospitals' Departments</u>		<u>F</u>	<u>P</u>
		<u>Medicine</u>	<u>Laboratory</u>		
Communication and openness	Mean	1.97	3.09	2.51	.003
	Sd	1.04	1.31		

Table (5.20) identifies the health care workers' perceptions of their communication and openness about patient safety issues in different work areas. As shown in table 35 above, the one-way ANOVA showed a significant result ($F = 2.51, p = .033$) in this area. The Tukey test showed that the laboratory department staff were more open and spoke about patient safety matters (Mean = 3.09, sd = 1.31) than those who worked in medicine departments (Mean 1.97, sd = 1.04). No other significant differences were found between other hospital departments.

Table 5.21 Handover and transition of patients in work areas.

Dimension	Statistical test	Hospitals' Departments		F	P
		Pharmacy	Ophthalmology		
Hospital Handover and Transitions	Mean	2.15	3.18	2.21	.009
	Sd	.265	.908		

Table 5.21 shows the perceptions of the health care workers about the effect of shift exchanges on patients' safety. The one-way ANOVA showed a significant result ($F=2.21, p=.009$) in this area. A further Tukey test found that the ophthalmology departments had more negative experiences with handovers and transitions of the patients (mean 3.18, sd=.908) than the pharmacy departments (Mean = 2.15, sd = .265).

Table 5.22 Patient safety culture dimensions with health care worker groups

Dimension	F	Sig
Frequency of event reporting	2.090	.125
Overall perception of safety	3.567	.029*
Manager expectation	.637	.529
Organisation learning	2.082	.126
Team work within hospital	.448	.639

Communication and openness	1.415	.244
Feedback to error	.344	.709
No punitive response to errors	3.521	.031*
Staffing	.418	.659
Management support for patient safety	.272	.762
Team work across hospital	.684	.505
Hospital handover	1.557	.212

* Presents significant result

Table 5.22 a one-way ANOVA was conducted to identify differences regarding patient safety culture dimensions by health care worker groups. The test found significant results with the dimensions of overall perception of safety with ($F=3.567$, $p= .029$) and non-punitive response to errors with ($F=3.521$, $p= .031$). Further Tukey tests were conducted to identify which health care worker groups were different from others as shown in Tables 5.23 and 5.24.

Table 5.23 Overall perception of safety with health care workers

Dimension	Statistical test	Health care worker groups			F	P
		Nurses	Doctors	Technicians, Managers & Pharmacists		
Overall perception of safety.	Mean	2.88	2.98	2.77	3.56	.029
	Sd	.518	.552	.623		

Table 5.23 shows results for the analysis of the perception of health care workers regarding the overall perception of safety. A one-way ANOVA was conducted and a significant difference was found ($F = 3.56$, $p=.029$). Moreover, the Tukey test showed that doctors were more positive on the overall perception of safety (Mean = 2.98, Sd =.552) than others groups of technicians, pharmacists and managers (Mean 2.77, Sd= .623).

Table 5.24 Non-punitive response to errors with health care workers.

Dimension	Statistical test	Health care worker groups			F	P
		Nurses	Doctors	Technicians, Pharmacists & managers		
Non-punitive response to errors	Mean	2.52	2.71	2.48	3.52	.031
	Sd	.648	.720	.748		

A one-way ANOVA was conducted in the table (5.24) to examine the perception of health care workers on non-punitive response to errors from their work environment, and a significant result was found (F=3.52, P=.031). Moreover, the Tukey test showed that doctors (Mean=2.71, sd=.720) were more positive in their perception of a non-punitive response to their errors than other health care worker groups. Meanwhile technicians, pharmacists and managers (Mean= 2.48, sd=.748) were less positive about a non-punitive approach and blame free environment for dealing with errors when they happened in Libyan hospital work.

Table 5.25 Patient safety culture dimensions and work hours per week

Dimension	F	Sig
Frequency of event reporting	3.175	.008*
Overall perception of safety	1.712	.131
Manager expectation	1.114	.353
Organisation learning	2.170	.057
Team work within hospital	1.929	.089
Communication and openness	.325	.898
Feedback to error	1.191	.313
No punitive to response	1.457	.203
Staffing	.717	.611
Management support for patient safety	1.532	.179

Team work across hospital	1.990	.080
Hospital handover	2.256	.049*

*Presents significant result

Table 5.25 depicted the findings of a one-way ANOVA, conducted to identify the effect of the number of work hours per week on patient's safety. It showed significant results were found with the dimensions of frequency of event reporting ($F=3.175$, $p=.008$) and hospital's handover and patients' transition ($F=2.256$, $p=.049$). Further Tukey tests were conducted 5.26 to 5.27.

Table 5.26 Frequency of events reporting and work hours per week.

Dimension	Statistical test	Number of work hours per week		F	P
		Less than 20 hours	More than 40 hours		
Frequency of events Reporting	Mean	2.23	2.91	3.17	.008
	Sd	1.32	1.31		

Table 5.26 shows the findings of a one-way ANOVA which was conducted to investigate the perception of health care workers on the difference between the frequency of events reporting and the number of work hours per week. A significant difference was found ($F = 3.17$, $P = .008$). Further analysis was conducted by using the Tukey test and this showed that health care workers who were doing more than 40 hours per week (Mean = 2.91 , $sd= 1.31$) indicated that they reported errors more frequently from those who worked less than 20 hours per week (Mean = 2.23 , $sd = 1.32$).

Table 5.27 Hand over and work hours per week.

Dimension	Statistical test	Number of work hours per week		F	P
		Less than 20 hours	More than 40 hours		
Handover & Transitions of patients	Mean	2.61	2.89	2.25	.049
	Sd	.700	.778		

Table 5.27 a one-way ANOVA was conducted to investigate the perception of health care workers about the possible effects on patient's safety of the number of worker hours per week and handover and transition processes. A significant difference was found ($F = 2.25$, $p = .049$). Further analysis using the Tukey test found a significant difference in the perceptions of healthcare workers in that those who worked more than 40 hours per week tended to perceive that medical shift changes and the patient transition process had a negative effect upon patient's safety (Mean = 2.89, $p = .778$). Whilst, in contrast, those who worked less than 20 hours per week tended to have less of a negative perception of the effect that handover and patient transition had upon patient safety (Mean = 2.61, $sd = .700$).

Table 5.28 Patient Safety Culture Dimensions in 3 hospitals

Dimension	F	Sig
Overall perception of safety	5.073	.007*
Frequency of event reporting	7.531	.001*
Manager expectation	.540	.583
Organisation learning	14.938	.000*
Team work within hospital	6.960	.001*
Communication and openness	6.059	.003*
Feedback to error	14.216	.000*
No punitive to response	.123	.884
Staffing	.203	.817
Management support for patient safety	7.543	.001*

Team work across hospital	25.244	.000*
Hospital handoff	6.296	.002*

Table 5.28 gives details of the examination of patient safety culture dimensions in the three hospitals. A one-way ANOVA was conducted and showed 9 significant results within the 12 patient safety culture dimensions. Further Tukey tests were conducted for these 9 significant results as show Table 5.29 to 5.37.

Table 5.29 Overall perception of safety and hospitals

<u>Dimension</u>	<u>Statistical test</u>	<u>Hospitals</u>			<u>F</u>	<u>P</u>
		A	B	C		
Overall perception of safety	Mean	2.87	2.75	2.98	5.073	.007
	Sd	.595	.520	.556		

A one-way ANOVA was conducted (shown in Table 5.29) to investigate differences in the overall perception of safety in the three hospitals. A significant difference was found in the overall perception of safety (F= 5.073, p =.007). Further Tukey test showed the staff of Hospital B had more negative overall perceptions of safety than staff in the other two hospitals (Mean = 2.75, sd= .520). Whilst still negative, the views of patient safety of the staff of Hospital C (Mean =2.98, sd= .556) were more positive than the views of staff in the Hospital A and Hospital B.

Table 5.30 Frequency of events reporting in three hospitals.

<u>Dimension</u>	<u>Statistical test</u>	<u>Hospitals</u>			<u>F</u>	<u>P</u>
		B	C	A		
Frequency of events reporting	Mean	2.33	2.95	2.81	7.531	.001
	Sd	1.14	1.26	1.37		

The data in Table 5.30 shows that from the one-way ANOVA analysis, a significant result in the dimension of the Frequency of events reporting in the three hospitals was found (7.531, $P = .001$). A further Tukey test was conducted and identified that the frequency of events reporting was lower in Hospital B compared with the other two hospitals (mean = 2.33, $sd = 1.14$) while the Hospital C had the highest frequency in reporting error events (Mean 2.95, $sd = 1.26$).

Table 5.31 Organisational learning and continuous improvement for patient safety and hospitals

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Organisational learning & continuous improvement	Mean	2.68	3.20	3.26	14.93	.000
	Sd	.939	.789	.834		

Table 5.31 shows the results of a one-way ANOVA that was conducted to investigate the perception of health care workers about the organisational learning and continuous improvement for patient safety in the three hospitals. A significant difference was found ($F = 14.93$, $p = .000$). A further Tukey test showed that Hospital C had the most supportive environment that encouraged staff to learn from mistakes and improve patient safety (Mean 3.26, $sd = .834$), while the hospital B had the least (Mean = 2.68, $sd = .939$). This may reflect that Hospital C has a learning and training programme in place.

Table 5.32 Teamwork within departments and hospitals

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Teamwork within hospital	Mean	2.94	3.22	3.33	6.96	.001
	Sd	.827	.834	.789		

A one-way ANOVA was conducted (shown in Table 5.32) to examine the perception of health care workers about the application of teamwork within their departments. A significant difference was found in teamwork within departments ($F= 6.96, p =.001$). A further Tukey test showed Hospital B applied less teamwork within departments (mean = 2.94, $sd = .827$), whilst the most teamwork was carried out in Hospital C (Mean= 3.33, $sd= .789$). This may reflect that there was good cooperation and coordination between the heads of departments of hospital C.

Table 5.33 Communication and openness and hospitals

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Communication and openness	Mean	2.80	3.25	3.21	6.05	.003
	Sd	.993	.1.03	1.03		

A one-way ANOVA was conducted and a significant difference was found in the amount of the communication and openness in three hospitals ($F= 6.05, p =.003$) (see Table 5.33). A Further Tukey test showed that the Hospital B work environment was less open and there was less discussion of patient safety issues than in the other two hospitals (mean = 2.80, $sd= .993$). In contrast, more open and free communication occurred in Hospital A (Mean = 3.25, $sd = 1.03$). This could be that the staff of hospital A had good interpersonal relationships and they were no professional boundaries between different health care groups.

Table 5.34 Feedbacks and communication about errors and hospitals.

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Feedback & communication about errors	Mean	2.57	3.02	3.27	14.2	.000
	Sd	.974	1.04	1.00		

Table 5.34 shows result of a one- way ANOVA which was conducted to investigate the perceptions of health care workers about feedback and communication on patient safety matters. A significant difference was found ($F= 14.2$, $p =.000$). A further Tukey test showed that the health care staff of Hospital B perceived the dimension of communication and feedback on errors negatively in comparison with other hospitals (mean = 2.57, $sd= .974$). Whilst the health care staff of Hospital C were more positive on communication and feedback on errors than the other two hospitals (Mean 3.27, $sd= 1.00$).

Table 5.35 Investigation of management support for patient’s safety in hospitals.

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Management support for Patient Safety	Mean	2.28	2.84	3.06	25.2	.000
	Sd	.859	.801	.888		

A one-way ANOVA was conducted to investigate the health care workers’ perceptions of their hospital’s management concerning support patient safety (Table 5.35). A significant differences was found ($F= 25.2$, $p =.000$). A further Tukey test was used which showed that Hospital B’s management was less sympathetic in supporting patient safety issues than the other two hospitals (Mean = 2.28, $sd= .859$). In contrast, the management of Hospital C was more supportive than others for patient safety issues (Mean 3.06, $sd= .888$).

Table 5.36 Teamwork across hospital departments.

Dimension	Statistical test	Hospitals			F	P
		B	C	A		
Team work across hospital	Mean	2.71	3.06	2.92	7.54	.001
	Sd	.669	.692	6.57		

Table 5.36 shows the results of a one-way ANOVA into the application of teamwork between hospital departments, which also produced a significant result ($F=7.54$, $p=.001$). A further Tukey test found that there was less inter-departmental teamwork in Hospital B (Mean = 2.71, $sd=.669$) than in the other two hospitals. The most inter-departmental teamwork occurred in Hospital C (Mean = 3.05, $sd=.692$).

Table 5.37 Handover and transition on the patients in three hospitals.

Dimension	Statistical test	Hospitals			F	P
		B	A	C		
Handover and transition of the patients	Mean	2.60	2.89	2.93	6.29	.002
	Sd	.729	.683	.817		

Table 5.37 displays the results of a one-way ANOVA examining health care workers' perceptions of the effects of shift changes and patient transition on patient safety. A significant result was found regarding the effect of handover process and transition on patient's safety in the three hospitals ($F= 6.29$, $p= .002$). A Further Tukey test showed that shift change and patient transition processes had the most negative impacts on patients in Hospital C (Mean=2.93 , $sd= .817$). Hospital B's patient handover and transition procedures had the least negative impacts of the three hospitals (Mean =2.60, $sd= .729$).

Table 5.38 Dimensions that predicted level of patient safety culture in the hospitals:

Predictor Variables	Standardizes Coefficients	t	P
	Beta		
Frequency of event reporting.	-.020	-.311	.756
Overall Perception of safety.	.047	.861	.390
Organisational Learning and continuous improvement.	.132	2.027	.044*
Teamwork within department.	-.013	-.205	.837
Communication and openness.	.044	-.679	.498
Feedback and communication about errors.	.126	1.646	.101
Hospital management support for patient's safety	.209	3.153	.002*
Teamwork across the hospital	.027	.446	.656
Handover and Transition	.061	1.134	.258

Table 5.38 shows the findings of multiple regressions that were conducted to examine the predictors of nine significant patient safety culture dimensions. The patient safety culture dimensions were used as dependent variables and the three hospitals were entered simultaneously as predictor variables. The test indicates that the model accounted for only 13% of the variance (Adjusted $R^2=0.13$) ($F= 6.688$ and $p=.000$). The table shows that two dimensions organisational learning and continuous improvement and hospital management support for patient's safety were significant in predicting patient safety culture in the three hospitals.

Table 5.39 the correlation between patient safety culture dimensions

Dimensions of Patient safety	1.TWWD	2.ME&APPS	3.OLCI	4.MAFPS	5.OPOPS	6.F&CAE	7.CO	8.FOER	9.TWAH	10.ST	11.H&T	12.NPRTE
1. TWWD												
2. ME&APPS	0.427**											
3. OLCI	0.564**	0.326**										
4. MAFPS	0.387**	0.328**	0.336**									
5. OPOPS	0.261**	0.220**	0.264**	0.180**								
6. FCAE	0.373**	0.475**	0.385**	0.417**	0.226**							
7. CO	0.205**	0.398**	0.170**	0.315**	0.184**	0.548**						
8. FOER	0.278**	0.308**	0.350**	0.406**	0.104	0.566**	0.360**					
9. TWAH	0.323**	0.283**	0.254**	0.343**	0.148**	0.353**	0.296**	0.177**				
10. ST	0.240**	0.146**	0.267**	0.129*	0.114*	0.173**	0.115*	0.71	0.190**			
11. H&T	-0.171**	-0.123*	-0.156**	-0.117*	-0.12	-0.202**	-0.69	-0.168**	-0.129*	-0.18		
12. NPRTE	0.140**	0.176**	0.190**	0.136*	0.210**	0.126*	0.70	0.76	0.38	.054	0.52	

(** p <0.001)

1. TWWD= Teamwork within department, 2.ME&APPS=Manager Expectation& Action Promoting Patient Safety, 3.OLCI= Organizational Learning Continuous Improvement, 4.MAFPS=Management Support for Patient Safety, 5.OPOPS=Overall Perceptions of Patient Safety, 6.F&CAE=Feedback and Communication about Error, 7.CO=Communication Openness, 8.FOER=Frequency of Events Reported, 9.TWAH=Teamwork across Hospital, 10.ST=Staffing, 11.H&T=Handover &Transition 12.NPRTE=No punitive response to errors.

Table 5.39 Further correlation data analysis between was conducted to explore the relationship between patient safety culture dimensions and patient safety. The analysis used the correlation coefficient (r) to measure the correlation between the value 2 variables (** p <0.001). The correlation tests found several significant moderate and weak correlations between patient safety culture dimensions. A positive correlation between the dimension of teamwork within departments and the dimensions of manager expectation for promoting patient safety , organisational learning continuous improvement ,management support for patient safety , overall perception of patient safety , feedback and communication about errors, communication and openness between the staff, frequency of event reported , teamwork across hospitals, and non-punitive response to errors were found. However, a negative correlation between the teamwork within departments and the patient’s safety problems experiences due to patient handover and

transition procedures was found. In contrast, no correlation was found between the dimension of communication and openness of health care workers and non-punitive responses to errors.

Furthermore, there was no correlation between the dimensions of frequency of event reported and staffing levels. Also, no correlation was found between the frequency of event reported and non-punitive responses to errors. Moreover, there was no correlation between the dimensions of teamwork across the hospital and non-punitive response to errors. No correlation was found between the number of hospital staff and non-punitive response to errors. Additionally, the procedure of patient handover and transition found had no correlation with the dimension of non-punitive response to errors.

5.4 Conclusion:

The quantitative study (Phase 1) identified that ten of the twelve dimensions related to patient safety culture in Libyan hospitals need to be improved. The areas of weakness mainly resulted from the lack of an error reporting system, lack of support from hospital management for patient safety issues as well as feedback on errors from managers. The hospital environments were dominated by an atmosphere of fear of blame and punishment when an error occurred. Another concern was ineffective communication between health care providers and poor coordination across hospitals that led to unsafe procedures related to the handover of patients between shifts in staff and departments. Further data analysis using one way ANOVA and Turkey tests to examine patient safety culture dimensions in different work areas found three significant results within the dimensions of frequency of event reporting, the communication and openness, and the dimension of handover and transitions. In addition, the findings found that health care workers were significantly

different within the dimensions of non-punitive response to errors and the dimension of overall perception of safety. Furthermore, the findings revealed there were differences in patient safety culture dimensions and the number of work hours worked per week. The health care workers who work less than 20 and more than 40 work hours per week were different in reporting errors and concerning the handover and transition of patients.

In addition, the findings showed that nine of twelve patient safety culture dimensions were significantly different in the three hospitals. It revealed most of these dimensions were weak in hospital B, whilst hospital C was good when compared with the others. The study also examined dimensions that predicated patient safety culture in the three hospitals. The dimensions of organisational learning and the management support for patient safety were significant predictors. Finally, the results revealed the correlations between patient safety dimensions. This study will be followed by the second phase qualitative research to find out workers' opinions on why patient safety culture practice was poor in Libyan hospitals.

Chapter 6: Qualitative findings

6.1 Introduction

This chapter presents the main qualitative findings of the second phase of the research study and is based on the results of the semi-structured interviews conducted with 27 health care workers from different health professional backgrounds. The findings are organised under categories and subcategories of themes that emerged from the interviews. Phase two was undertaken to supplement the findings of the phase one quantitative study. It gave a clear picture and comprehensive information on perceptions of patient safety practice in Libyan hospitals. It explored further staff perceptions about the factors that are necessary for patient safety. It also revealed issues that they did not mention in the quantitative survey. Furthermore, it produced more subjective information regarding the perception of patient safety to try to get a deeper understanding of why there were such negative perceptions of patient safety practice amongst health care workers. Therefore, the consequent qualitative study helped the researcher to ascertain a more comprehensive picture of the factors that have a bearing on patient safety in Libyan hospitals.

The researcher is originally from Derna City in Libya and has a Master's in Public Health from Maastricht University in the Netherlands. He has worked as a Public Health Officer for the Ministry of Health (MOH) and as the Director of a health centre for the MOH in Derna City. Following this, he has also worked as a lecturer in Public Health at Omar Mukhtar University in Libya, where several field visits were conducted for students to experience the working practices of a number of Libyan hospitals, including the three hospitals under study in this research. This broad experience has given him a deep appreciation of the context for the study and many contacts to enable successful completion of the surveys and interviews. The experience helped the researcher select an

appropriate focus for the research and the contacts made helped in the facilitation of the data collection. As a native of the area, and a native Arabic speaker, the researcher was able to empathise with the participants given he had an awareness of the societal and political pressures that the participants were under, especially prior to the revolution, and particularly given the sensitive nature of critical information regarding patient safety.

6.2 Qualitative analysis:

Phase2

The qualitative data analysis of this phase of the research took an Interpretive Phenomenological Analysis (IPA) approach, which involved a systematic and staged process. The aim was to understand the central meaning of the content and complexity of the interview data rather than simply measuring frequency (Smith, 2008). The researcher engaged in an interpretation process with the interviewee's transcripts by reading them a number of times to become familiar with texts. All the data from the face-to-face interviews were recorded and transcribed and combined with the data from the e-interviews to be treated as one data set to allow the data to be prepared for a more thorough analysis. The researcher read and reread the interviews text several times until he became a familiar with data. A double hermeneutic process of interpretation was employed during the data analysis whereby the researcher lived with the experience of the health care workers and tried to make sense of their worlds. In other words, the data analysis was done by making sense of the interpretations of both the staff and the researcher. Also, critical questions could be answered during the analysis of the data, such as 'What is the health care worker trying to achieve? 'Have I an awareness of behaviour of health care workers that they are perhaps unaware of themselves? And 'Are there significant, unintended leaks from the staff that have become apparent in my data that could be used in the data

analysis?’ (Smith, 2008). For more detailed for qualitative data analysis see appendix (17) of an interview sample.

Interesting information was then highlighted and initial notes were put in the left-hand margin as a preliminary interpretation. Then, after reading all the transcripts, the researcher returned to the initial notes and transformed them into themes under titles, which reflected and captured the perceptions of the participants and his interpretation of those perceptions. Such an approach is termed the double hermeneutic process of interpretation (Smith, 2008).

Word documents were created for each of the interview transcripts, and the themes were listed in them. The researcher used a code system for the transcript of each interview by giving each participant a unique reference code, numbering the lines of each transcript, and colouring sentences based on which theme they belonged to. Furthermore, all emergent themes, which had been extracted from the interview transcript data, were listed on a sheet of paper so that they could be merged and connected with each other. In the following stage, the supervisory team and the researcher reviewed them and checked their connection and tried to make sense of the data by clustering all the themes related to effects on patient safety culture in the hospitals and giving them appropriate labels. Broad factors were grouped into a four level hierarchy of: main superordinate themes, subordinate themes, themes and subthemes.

Then, the next step was to present this four-fold hierarchy in a table using the aforementioned colouring and coding system, with a unique code to identify each participant and using line numbers of the quotations from the interview transcripts to help the researcher relocate the extracted quote. All themes were listed in a table under different superordinate; subordinate; theme; and subtheme. The stages of the qualitative analysis undertaken by the researcher were audited by the supervisory team, to check that each

statement was relevant to patient safety and had been given equal value (Miles & Huberman, 1994). An appendix 14 shows the practical steps of the qualitative data analysis syntax process.

Each hospital and every health care worker was given a code through the research process and this was maintained during data analysis to ensure the participants' anonymity. See the table 6.1 below.

Table 6.1 displays each hospital and health care workers and their code in the data analysis

Hospitals	Code	Doctor	Nurse	Technician	Pharmacist	Specialist	Manager	Health Care Assistant
Hospital A	ATH	ATHD	ATHN	ATHT	ATHP	ATHS	ATHM	ATHA
Hospital B	AWH	AWHD	AWHN	AWHT	AWHP	AWHS	AWHM	AWHA
Hospital C	ABH	ABHD	ABHN	ABHT	ABHP	ABHS	ABHM	ABHA

E = the code of interviews which had been sent by email.

F = the code of interviews which had been conducted face to face.

6.3 The qualitative findings

Through the interview process, the participants discussed their perceptions of the attitudes and behaviours of their colleagues in relation to patient safety culture. The aim in this phase was to capture individual perceptions, opinions, feelings, views and experiences in order to give an in-depth understanding about many of the patient safety issues, which were revealed in the first phase quantitative study. Different issues related to patient safety were covered in the interview questions and these included the patient safety culture dimensions and its associated questions outlined in Table 6.2.

Table 6.2 interview questions

N	Dimension	question
1	Overall Perception of Safety	In your opinion what level of importance is placed on patient safety in your hospital?
2	Frequency of Reporting	When an error occurs what procedures are followed to manage this?
3	Communication & Openness	In your opinion how does communication between professionals affect patient safety?
4	Feedback about errors	In your experience after an error is reported what feedback do you receive from your manager?
5	Management support for patient safety	Can you tell me what level of importance hospital management put on patient safety and can you give an example to support your answer?
6	Non Punitive response to errors	From your observations do you think health care workers are concerned about personal consequences when they report an error? Please explain the reasons for your answer?
7	Staffing	In your opinion what affect do staffing levels have on patient safety?
8	Teamwork within Hospital	In your opinion how does the teamwork within your department affect patient safety?
9	Teamwork across Hospital	In your opinion how does teamwork between hospital departments affect patient safety?
10	Organisational Learning	In your experience how does the hospital help you and others learn from mistakes?
11	Hospital hand over	In your experience, how does the handover process between shifts affect patient safety?
12	Managers' Expectations	In your opinion what level of importance does your head of department place on patient safety?
13	Revolution implications	How has the current conflict in Libya affected patient safety in your hospital?

Various superordinate themes, subordinate themes, themes and subthemes were categorised which produced a theoretical framework to provide an understanding of the causes that lead to health care workers' perceptions of patient safety practice in Libya. See Figure 6.1

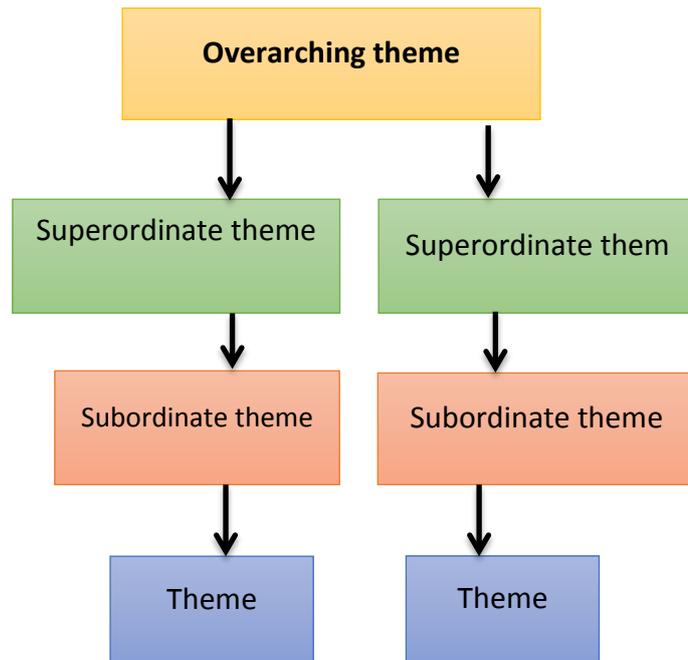


Figure (6.1) Qualitative data categorisation

Cultural and social issues were considered to be the main overarching theme as most participants' accounts featured a dialogue about the effect of social and cultural factors on patient safety. Social and cultural issues were noticeable in the perception and opinions of participants towards patient safety practice in the Libyan context.

The analysis revealed the existence of one main overarching theme of cultural and social issues with 3 superordinate themes, as listed below:

- Superordinate theme 1: Politics and policy.
- Superordinate theme 2: Organisational system.
- Superordinate theme 3: Health care workers issues

Through this chapter, each of the themes will be discussed using data extractions from the interview transcripts to illustrate the points made. The qualitative findings are presented in detail in Figure (6.2) which illustrates the main superordinate themes and subordinate themes that emerged from the data.

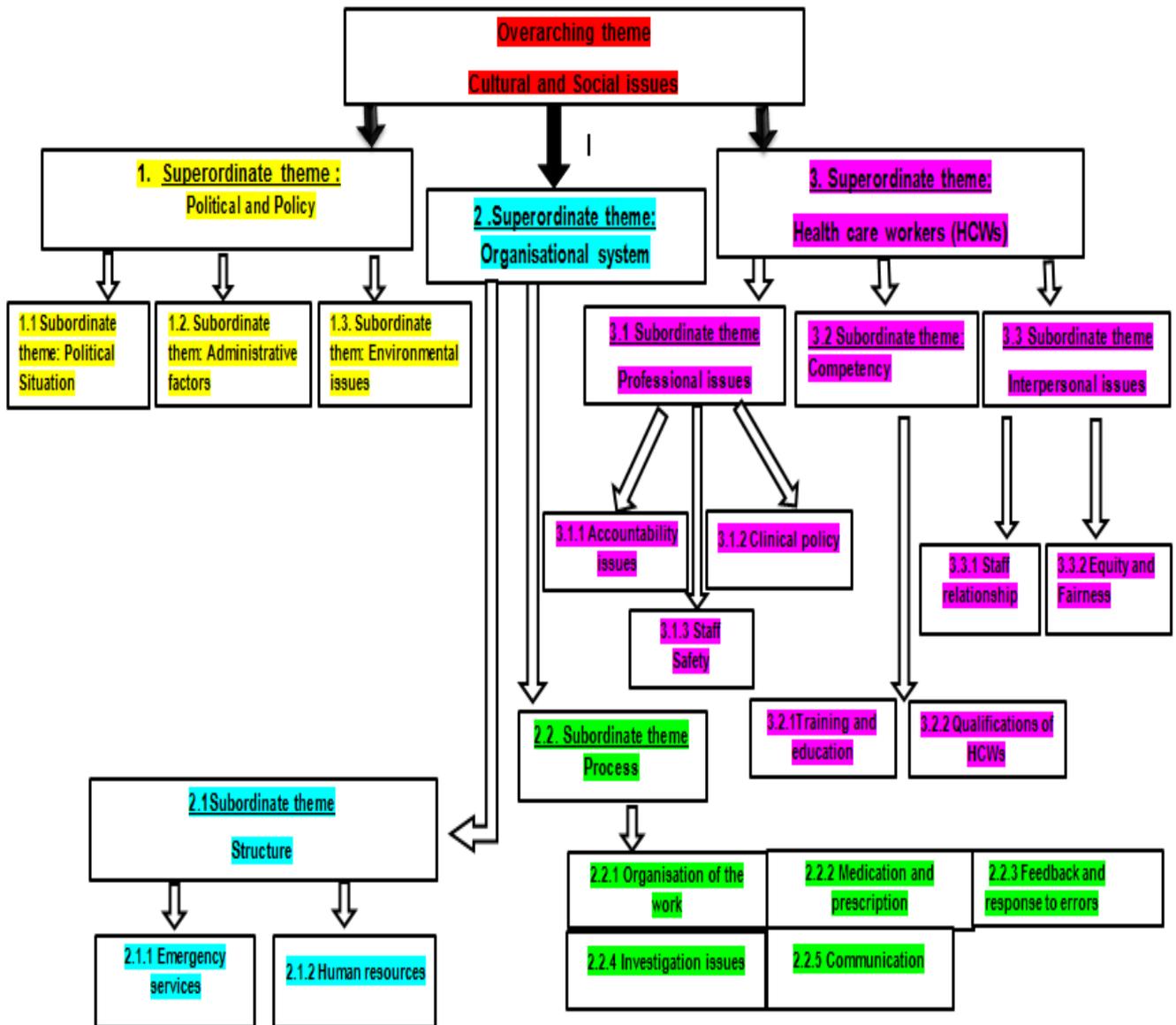


Figure (6.2) Qualitative findings Superordinate, Subordinate and Themes

6.3.1. Superordinate theme: Politics and policy

The superordinate theme of politics and policy reflects the participants' different views and opinions regarding patient safety culture in the context of the political changes and the implications of the revolution and the consequent military conflict on the hospitals. The internal policies of the three hospitals that employed the participants also featured within these three subordinate themes, which characterised this superordinate theme, and they were grouped as following:

6.3.1.1 Subordinate theme: Political situation.

6.3.1.2 Subordinate theme: Administrative factors.

6.3.1.3 Subordinate theme: Environmental issues.

6.3.1.1. Subordinate theme: Political Situation

In this subordinate theme, the participants discussed many issues around the political changes and the revolution and conflict in the country and their implications for patient safety in the hospital environment. Most respondents talked about how patient safety was severely compromised during the period of conflict that was a feature of the changing political system prior to and following the Libyan revolution. The participants discussed their experiences during the uprising and the consequent effects on the Libyan hospitals. Different participants expressed different implications and matters relating to the revolution and its effects on patient safety. As illustrated in the following quotation:

“Another dangerous problem that happened for new born babies in the paediatrics department and some patients in the intensive care unit was due to the electric power cut from time to time in the hospital.”(BT2 F)

Participants talked of the lack of electricity power supply in the hospitals that compromised patient safety as result of the decrease of fuel supply in country as a result of the conflict (especially during the first months of the revolution when the production of the Libyan oil stopped due to security reasons). This situation, and the fact that hospitals were not prepared for these events, and some were undergoing maintenance before revolution lead to implications for patients.

As illustrated in the ensuing quote, further concern about patient safety mentioned by some participants related to the suspension or stopping of sterilisation services in some hospitals during the conflict.

“The current situation stopped maintenance services for the department’s machinery due to lack of finance and the engineers could not come during the conflict days. The sterilisation machine is out of order, so all the hospital’s instruments have to be sent to a hospital in another city to be sterilised.” (BT2 F)

In addition, other participants said that during the days of the revolution medical supplies to hospitals had ceased, especially to those hospitals near conflict zones such as the cities in the northeast and in the west of Libya. In the three hospitals that were located at the heart of the conflict, even the most basic medical materials were not available. This situation is illustrated in the following quotation:

“We had a severe shortage in even essential medical supplies and we had to work without them. We worked during the uprising without medical gloves when examining patients; this meant that infections could be transferred from one patient to another or from patients to staff. But what we could do? We had to work and save people’s lives.” (CD1 F)

Several participants spoke about another implication of the uprising that was related to the lack of available health care staff, as many foreign health care staff had to leave the country due to security issues. This situation affected the staff work schedules and increased work hours and workload. Moreover, there was also a shortage of female nursing staff during the early days because women were scared to go to work.

“We suffered from staff shortages as the foreign staff had to leave the country. Another problem was the absence of medical supplies and drugs which came from the central government in Tripoli. Also, during the first days of revolution, there were many absences of staff because of the security situation, especially the female workers.” (CP F)

In addition to the lack of overseas staff, there was also a problem with absences amongst Libyan staff as many of them offered medical help at the fighting line rather than attending work, as explained in this example:

“Hospitals were badly affected because of Doctors, nurses and ambulances went to the battle lines.” (BD1 E)

Another serious implication of the revolution that was expressed by many participants was the absence of law and order and accountability within the hospital. The hospital managers were more concerned about their personal safety than worrying about staff discipline. Security in the hospitals was lacking because of the spread of weapons and the absence of any police protection for staff and patients.

“The current situation creates a managerial gap, the health care workers no longer feared the hospital management.....[Why?] there are no punishment measures taken against them such as... cutting or stopping their salary. Even if the hospital management was informed about their absences, they would not take any action against them as the managers were more concerned about the personal consequences’’. (CT1 F)

Despite the significant negative effects of the war and the consequent compromised patient safety, some participants were able to draw out positive issues that occurred during the revolution days. In particular, it was evident that the relationship and teamwork between health care workers had changed and become stronger and better than before the revolution as the following respondent indicates:

“The teamwork and communication between us was great during the revolution days. We were working with each other as if we were one family. Even our relationships had improved and we were working harder for long hours and we forgot our disputes.” (AT1 E)

This study coincided with serious political and military uprising in Libya, which has enormous implications for patient safety in the hospital setting. However, the conflict was not the only issue of concern and it was clear that other less palpable issues also had bearing on patient safety, including administrative factors. Please see appendix 18 which shows an example of the researcher’s reflection on the theme of superordinate politics and policy.

6.3.1.2 Subordinate theme: Administrative factors

In the second subordinate theme, the participants expressed many concerns about the effects of hospital management and other administrative issues on patient safety. Many responses articulated by a number of the respondents concerned poor hospital management. Many participants talked about the negative effects of hospital management on patient safety and the lack of commitment from management towards improving and supporting patient safety. It was evident from the analysis of the data by a double hermeneutic interpretation of participants and then the researcher that instances of poor administration and poor management in the hospital departments created situations that threatened patient safety and that these were common, as illustrated in the ensuing data extract:

“In our hospital patient safety is not important. We do not have a patient safety department or an officer in charge of patient safety in hospital’s administrative structure. I can describe the situation of patient safety in our hospital to be like something in an imaginable world but it is not suitable for the real world. I can give many examples about the poor support for patient safety. It starts from poor sterilisation, poor cleanness, and ends by not providing the hospital with anti-fire equipment.” (BT1 E)

Further respondents talked about the many patient safety problems in the hospital because hospital management had no rules or standards and were careless with healthcare staff. Moreover, there was a lack of trained staff again, due to what participants perceived to be ineffective hospital management. For example:

‘I will give you a proverb which says a loser of something cannot give it. The principles of hospital management, safety and quality, are not applied in our hospital. The second thing is that our hospital does not operate by a board. One person who does everything and is responsible for everything controls our hospital. Even if this person was good, he cannot do everything alone and be responsible for everything. It is not a matter of power, but of knowledge and skills.’ (BS F)

Another issue revealed by the participants was the effect of social relationships and culture on hospital organisation. Participants indicated that social factors affected health managers’ performance and decisions concerning the provision of good health care services as explained in this example:

‘As you know our society is very tribal, it affects the performance of the heads of department and the hospital directors. The first question asked by healthcare workers about any new manager is to find out which family they belong to. They try to put pressure on you through their social network to answer their requests. For example, the director of the hospital put some of his relatives as heads of some departments even though they were not qualified. It is so disappointing that your manager is not qualified and all he cares about is his position. Many heads of department have changed, but others are not very good.’ (ANM F)

This section highlighted some of the administrative factors that have a bearing on patient safety. Further to these, environmental issues also have an influence on the superordinate political theme

6.3.1.3 Subordinate themes: Environmental issues

The third subordinate theme that related to politics and policy was based around environmental issues, with many respondents expressing concern over issues related to the effect of hospital environments on patient safety. They expressed these about issues such as the overall hospital design, the department layout, and room design and bed numbers as shown in the following quotations:

“Sometimes, especially in case of some RTAs, the department’s beds will be filled within 5 minutes. When we ask for more beds, they are all booked. The room is small and only has six beds so it gets crowded. On some occasions, we have to put some patients in the corridor due to lack of space.” (AN1 F)

“Another problem we have with the design of the hospital is the location of the intensive care unit. It is far away from the emergency department and when the lift is out of order and we have to carry patients by hand up the stairs. We had a tragic incident when we were carrying a patient with severe bleeding from the emergency department to the intensive care. It took such a long time that the patient passed away before we got him there.” (AA E)

Another safety issue identified was about the hospital maintenance services. The participants believed many issues arose due to a lack of regular maintenance services. For instance:

“The maintenance of hospital facilities is very important for patient safety, but in our hospital all the lifts are out of order. This situation can put the patients in an impossible position especially for the urgent cases and the very ill”. (BT1 E)

Participants talked about the negative effect that maintenance and refurbishment services at the hospital had on patient safety, to the extent in some cases that entire departments were moved into temporary accommodation until the work was completed, as the following quote demonstrates:

“We are not in the main hospital building. We are in the polyclinic, it has been modified to be a temporary hospital as the original one is still under maintenance, and it needs maybe more than two years to be ready and fully equipped. So, we were asked by hospital management to achieve 30 % of the performance rate, as the place was not being used. Even this building now needs maintenance.” (BS F)

Furthermore, many patient safety incidences occurred as result of poor maintenance services, when some of the medical equipment either did not work at all or were unreliable.

Examples given included laboratory equipment and air conditioning.

“The air-conditioning in the lab was out of order, so that some investigations were stopped like Cerebrospinal fluid (CSF) which is very important in the diagnosis of some diseases. We had an experience with an easy problem but it continued for a long time and it stopped our work”. (CD2 E)

Furthermore, participants talked about the effect of equipment and material resources on patient safety. For example, the unavailability of medical equipment in various departments was a big issue that was seen to have an effect on the safety of the patients:

“Most of events relating to safety or lack of it, that happened in our department were due to the lack of medical equipment and not because of the staff. For example, we have only one ventilator for the whole department, so problems occurred when more than one patient was admitted with shortness of breath, this was due to lack of equipment and not staff error .” (AD2 E)

In addition, participants were concerned about the effect of out of date medical equipment on the quality of care, and the fact that there was no regular standardisation of medical equipment. For example:

“Some errors occurred due to some medical equipment being very dated. For example, we sometimes receive high blood sugar levels in some blood samples. Consequently, we repeat the tests manually or with other equipment before

giving any results to the patients. Some of our medical equipment is very old, even from the 1970s.” (AT1 F)

While another participant said:

“To be honest, we have not done standardization of our medical equipment for a long time. Some errors happened with us as result of inefficient medical equipment.” (CT1 F)

Even in highly technical areas like the coronary care unit (CCU), participants talked about the effect of equipment shortage on patients:

“The main problem we have in our department is the lack of medical equipment, for example: we have 6 beds and 6 Electrocardiography (ECG) machines but only 4 of them are working now, so this shortage affects patients’ safety as we need to monitor their vital signs like heartbeat, pulse and blood pressure continuously.” (AN1 F)

In addition, participants talked about the shortage of patients’ personal equipment and the lack of protective clothing for the staff. This shortage could be a source of infection for other patients especially with infectious diseases that could be transferred to other patients.

“All patients are asked to bring their personal equipment when they admitted to hospital such as covers, pillows and catering equipment”. (BT1 E)

“We should have protective clothing to protect workers and patients from the radiation, especially children and pregnant women. We do not have enough protective clothing and what we do have is of a very old design.” (BT2 F)

Another environmental issue identified from many respondents was related to the poor sanitation and hygiene policies as shown in the following data:

“A clean environment is an important issue for patients, and we have a big problem with it. I am speaking personally, I cannot imagine what I would do if I got sick, I could not sleep in this hospital. If it were necessary, I would not stay

more than 24 hours to avoid sleeping here. [Why?] Because the hospital rooms and toilets are not clean’. (ANMF)

Other participants had the same concern about the hospital facilities and quality of health care for patients:

‘We should be concerned about hospitalisation as many people do not like to stay in hospital, not because doctors are bad but because the facilities of the hospital are so poor. The majority of Libyan patients go to other countries to seek medical care due to bad hospitals and lack of patient–doctor interaction and the poor quality of hospital services. I think that these problems have happened due to there being no good facilities such as good accommodation for doctors which would mean they could spend more time seeing their patients.’ (BS F)

Another participant commented on the negative effects of poor staff facilities and general working conditions on staff performance. Staff did not have suitable break times nor places to take a break, for example;

‘I have been working since 8 this morning and now it is 01.00 am and so far I have not eaten anything. I cannot eat because there is nowhere I can; there isn’t even the chance to pray because there is no one to cover for me. So I am not sure how we are supposed to concentrate in such an environment and I am not sure that I will not make mistakes.’ (BN1 F)

In the superordinate theme of politics and policy, participants revealed a diversity of perspectives and concerns about the issue of the implications of the revolution on patient safety, such as the lack of medical supplies and services, and staff shortage. In addition, it is clear that participants had negative views about the hospital management and they believed that it was the cause of many of patient safety problems. Furthermore, participants were concerned about the effects of the hospital’s work environment, such as hospital design and maintenance and their effects on patient safety.

Having elaborated upon the political and policy superordinate theme, which included details of political, administrative and environmental issues that have implications for

patient safety in the hospitals, the data gleaned from the participants also elaborated upon organisational matters.

6.3.2 Superordinate theme: Organisational system

This superordinate theme arose from the many issues related to the organisation of hospital systems. Many participants considered that poor hospital organisation had an effect on patient safety. Two subordinate themes were generated within this category, namely structure and process. See another example on the reflection of the researcher (appendix, 18) on the superordinate theme of the organisational system during the process of the IPA.

6.3.2.1 Subordinate theme: Structure

This subordinate theme reflects a range of responses that were related to the effects of organisational structures on patient safety and particular reference was made to the structural arrangements relating to emergency services and human resources, which were of sufficient prominence to form themes.

As the emergency services have a critical effect on patient, safety and survivability participants expressed concern over perceived inadequacies in this area. These were often related to poor or lack of organisation and poorly trained staff:

“There is no emergency number; nobody knows the number to use in an emergency. I am a doctor, but even I do not know the emergency number. The ambulance is called the ‘death car’ and has no medical equipment or instruments. There is no team trained in dealing with emergencies. We need a properly trained emergency team and a well-known hotline number. Not all these things are impossible.” (BD1 F)

Whilst another participant said:

“From where I see it, many factors need to be considered in our hospital. The first of them is the emergency department (ED). It does not work effectively and does not fulfil its designated duty correctly. Many patients come to the ED and they are transferred to CCU immediately without any medical intervention at a critical time in the patient’s life. If I had the authority, I would employ medical staff that are well trained in emergency skills and know how to work in the ED.” (ANMF)

Further issue revealed by participants was about the effect social and cultural factors of the Libyan society on emergency services as explained in the following extracts:

“Another big problem in our hospital is caused by people who interfere in health care workers who are giving emergency services, especially in accident cases when the people collect round to carry the patients themselves. This problem occurs because people bring the patients in their own car and not by the ambulance.” (BN1 F)

“The most dangerous thing is when the people who do the First Aid are not from a medical background; they could be lay people, the patient’s family and even police officers who carried the patients.” (AD1 F)

Furthermore, other participants talked about the effect of hospital building design on emergency services:

“We should have an emergency department with different rooms all of which are well equipped. Male and female patients should be segregated in different rooms so patients can be under medical observation and get the right care before they are referred to the correct department. We need help in organising the admittance or discharge of cases; this could in turn reduce the work load in CCU who receives many emergency cases, some un-necessarily.” (AA E)

In relation to human resources, it was evident from the data that staff numbers have a significant influence on patient safety. Respondents talked about the effect of poor staffing allocation and badly balanced human resources in hospitals, as some work areas were over

staffed while others experience shortages that put increased pressure on patient care.

Different responses identified the effects of the lack of health care staff on patient safety.

“The number of staff is very important for patient safety... But, this is not considered in my hospital. In ICU 1 nurse cares for five patients, in CCU 1 nurse cares for six patients. In medical wards during the morning shift 1 nurse for cares 12 patients and at night the situation is even worse because there is 1 nurse for the whole department of males and females which is 1 nurse for 25 patientsyou can image how awful the situation is!” (BD1E)

Furthermore, a range of respondents expressed concern over the effect that understaffing has on patient safety:

“We have two nurses in every rota and currently we have six serious cases and each case needs two or 3 nurses, not just one. This means that sometimes we need a medical team, for resuscitation and preparation of drugs. Sometimes, resuscitation requires 4-5 nurses to save the patient’s life. Imagine how the work would be with only two nurses working if a serious case needs resuscitation. It affects the patients and the as they feel depressed that they cannot expect good outcomes. This is due to there being no emergency department; the hospital only has a GP and there is no room for resuscitation and no team to work there.” (AN1 F)

Conversely, other participants mentioned that they had a problem in their department with overstaffing and its effect on staff performance. This situation was seen to create confusion for the staff in achieving their duties, which could lead to patients not receiving their health care or missing treatment as explained below:

“The number of health care workers in my department should be 35 workers and I have got 50 healthcare workers and this overstaffing leads to a negative outcome. [Can you tell me why?] Because everyone relies on each other. For example, during night duty there ought to be four doctors on duty but perhaps two come and the other two do not come as they think their colleagues will cover for them. The problem is that if I just put two doctors in the rota I cannot be sure that they will come. If I report this to the hospital management, they do not take any action, this is the problem.” (BSF)

6.3.2.2. Subordinate themes: Process

The subordinate theme of process emerged from the second superordinate theme (organisational systems) and it contained a range of themes, reflecting a diversity of perspectives of respondents about the effect of the process of health care delivery on patient safety. These were grouped within five main areas:

6.3.2.2.1. Theme: Organisation of work

It was clear that participants believed that the way that work is organised has a significant impact on patient safety. Many respondents believed that many patients' safety problems happened in their work place due to poor organisation. There were concerns about safety during patient visiting and worries about the hospital admissions and discharge policies.

“There is no fixed time for visiting patients.... people can arrive at any time and in any place, even in the operating theatre.” (BN1 F)

While another participant said:

“Patients come to the hospital without a referral letter even for simple investigations like a blood sugar test or x-ray. We have patients who come to the hospital needing health care without being referred to us and that upsets the inpatients' treatment and care.” (CN2 F)

Furthermore, participants talked about the effect of poor organisation during admission on patient safety as identified from this quotation:

“Our hospital does not have medical priority criteria for ICU admission. When an accident happens, all patients are brought to ICU whether patients need to go or not. And this puts more pressure on us, especially because of the limited number of beds. The emergency department should work effectively; it is not an ICU and should not be used as such. Our efforts go into providing health care for outpatients but if as at

present, everyone goes to ICU we cannot care properly for the patient who needs ICU. In ICU, we have begun to work like an emergency department.’’ (AN1 F)

For example, participants mentioned people who disturbed or interrupted health care staff in their work. For example:

“The outpatients come without a referral letter to the department, which creates problems for us as, they ask us to provide them with services but when we tell them that we have other clinical priorities and commitments with inpatients within the department, they do not accept it; sometimes they shout at us.” (BN1F)

6.3.2.2.2 Theme: Medication and Prescriptions

A diversity of opinions and concerns were expressed about the effect of drug prescriptions on patient safety. Respondents were concerned about the way drug prescriptions were written; the current prescriptions are written by hand not by a computer system and there is no standard form that contains clear and complete information about patients and the drugs. This can lead to problems like misunderstanding the drug name and treatment doses. Concerns were expressed about the way drugs were dispensed and the lack of regulation of private pharmacies.

“One of the errors we face as pharmacists comes from the current prescriptions... Doctors prescribe drugs for patients’ treatment in their handwriting ... sometimes we read the wrong name of drugs, the dosage, or the concentration or the duration of the course.” (BP F)

“We have pharmacists on our staff who work in private and public pharmacies and there is no coordination between hospitals and private pharmacists. Even some of the people working in private pharmacies are not trained pharmacists. Many pharmacies work as stores and sell drugs without medical prescriptions. There are no regulations applied to the private sector.” (CP F)

Another patient safety issue identified from respondents was related to the availability of some drugs as many patients cannot afford to buy their treatment from the private pharmacies and the public hospitals do not always have the correct drugs available.

“We have a shortage in medical equipment and a shortage in drugs, even when we ask the patient’s family to bring what has been prescribed they cannot afford them from the private pharmacy.” (AN1 F)

In addition, some participants proposed some solutions to reduce patient safety from medication and prescription as they expressed concern about the standard of documentation around medication and reducing pharmaceutical errors, as illustrated in the ensuing quotation:

“Doctors should have a database about the drugs’ names and their code in the hospital pharmacy... So when they describe drugs they should write their name and code to help the pharmacists to reduce errors.” (BP F)

Another participant highlighted how the patients’ family may cause difficulties or complications for healthcare staff:

“We sometimes make mistakes like giving the wrong medication to a patient because some patients’ family members move the patient to a different bed without telling us.” (BN1 F)

Another concern explored by participants was about the poor pharmaceutical culture in the community and its effect on patients’ safety. People view drugs as consumer goods or commodities because they are freely available from the private pharmacies without prescription:

“We have another problem in the misuse of drugs among the community as they view them as consumer goods. Sometimes patients do not cooperate with us because they can buy treatments from private pharmacies without medical prescriptions or advice.” (AP F)

6.3.2.2.3 Theme: Reporting errors and feedback

There was a diversity of opinion about the effect of reporting errors and feedback on patient safety. A number of participants talked about the limited feedback and poor response of the hospital management to their requirements and reports. Some participants even mentioned that they stopped reporting their errors because of the associated frustrations:

“Let me talk with you frankly... we do not have a reporting system for errors. [Can you tell me why?]Yes, because we are frustrated by the management as we make many reports about problems and we do not hear from them.” (BS F)

The limited feedback by the hospital management featured as an issue in a range of settings:

“In some serious cases, like those with breathing problems, there is a need for a ventilation system and referral to the ICU which is in another place. The problem is that patients need to be transported by ambulance, but these are often late and have insufficient medical equipment. The result is that many patients expire in transit. We do report these events to the hospital management, but no further action is taken.” (BD2 E)

Whilst, another participant described the lack of action by management to feedback from staff:

“I needed to solve them [problems] without going to my head of department. I would describe my situation as being like someone fighting in a battle on the frontline, alone without support. The Head of my department does not even ask me to attend meetings. In our situation things, only work by God’s blessing.” (ANM F)

Participants talked about the lack of a culture for reporting errors among the staff when mistakes are made. Some respondents gave the fear of reprisal as a reason for the non-reporting of errors as typified in the ensuing account:

“Healthcare workers are afraid of the consequences of their mistakes being discovered because of the effect it may have on their position in the hospital, their reputation and fear of confrontation with patient families and the hospital management” (CNMF).

6.3.2.2.4 Theme: Investigation issues

Respondents identified many matters relating to the effect of medical investigations on patient safety. For example, many participants were concerned about the availability of investigations as illustrated in below example:

“We have problems with unavailability of blood test which are sometimes important for the diagnosis of some diseases. We have to send these tests to a hospital in another city and that causes a delay in the patient’s treatment. We cannot start the treatment, as we are not completely sure about the diagnosis. We need to wait until the test results arrive. (AD2 E)

In addition, there were issues about the importance of ensuring that a test result notification system was in place. Some participants talked about the lack of a test notification system for those with infectious diseases, which was necessary in order to limit further outbreaks:

“We should have a fast and effective notification system for on the infectious cases in in our hospital. ” (AT1 F)

Moreover, a critical issue was identified from some respondents regarding procedures for the verification of blood groups and about limited supplies in the hospital blood bank:

“Doctor must be sure that the blood bank gets the same blood group of their patient before doing the operation. For example, last week one of the doctors came to us in hurry and he was asking for a rare blood group O. Fortunately we had this blood group at that time in the blood bank but imagine if we did not have it, what would be happen for them!!” (AT1F)

6.3.2.2.5. Theme: Communication

Communication is considered an important element to provide effective and safe health care for the patients. Participants revealed that poor communication between different health care staff had a negative effect on patient safety.

“I cannot see good exchange of information and communication between the staff. Especially with new doctors who face difficulty in getting new clinical knowledge from staff who have experience.” (CDE)

A further concern about communication mentioned by respondents was about the exchange of information and communication during the patients’ treatment. There were many responses about the effect of good staff communication on patient treatment:

“The consultants should ask specialists, and specialists ask the new doctors (newly qualified) questions when giving medical information and directing doctors in their dealings with their patients.” (AD1 F)

While other participants talked about the benefits of good communication between different health care staff. They stated that open communication between staff about the patient’s treatment is a very useful discussion as it can prevent patient safety incidents.

“We in the Cardiac care unit complement each other, especially with the cases of the Intensive care department. Doctors write their orders and advise. We follow these orders and then they return back to discuss the management of the cases with us. There is a confidence between us; for example, if a nurse notices that there was something forgotten in the treatment process, I remind the doctor and they accept our notes.” (AN1F)

Furthermore, other participants talked about the necessity of providing health care staff in the hospital with equipment to facilitate communication between the staff themselves and improve the communication between patients with health care staff.

“We need a central communication system to connect with each other in the hospital... We need communication equipment for calling staff members especially in emergency cases... We need bells put beside patients’ beds to contact the staff if they need them ... Now, if patients need a nurse or a doctor they need to look for them themselves or have their family do it for them”. (CN1 E)

As well as discussing communication in general, participants focused specifically on three areas of concern in relation to the effect of communication on patient safety. For many participants the attention was on the commitment of health care workers to their duties. Several responses focussed on the importance of arriving in time to complete effective information exchange between two shifts. There was also a perception that staff should not leave unless a proper handover was completed. For example:

“Laboratory staff work in shifts and there are three shifts; morning, afternoon, and night. The shifts duty technicians should come fifteen minutes earlier than the actual duty times to hand over the remaining tests to the next shift in the lab. Having a schedule of duties with time given to transferring between shifts is very important to ensure the safety of the patient. Outgoing and incoming duties should have a proper and complete detail of endorsement and staff should not leave until incoming staff have arrived”. (CT2 F)

Whilst another participant indicated: *“The main problem in handover is nurses turning up for work late, even though we try to make enough space in the patient’s scheduled treatment time to accommodate the changing of shifts.”* (ANM F)

Moreover, participants highlighted their concern about the lack of a policy on patient handover in the hospitals. It was evident from a number of participants that there was no fixed procedure in place to ensure that the entire patient’s information was available to the next shift. At the time of data collection, the process depended on the responsibility and commitment of the staff handing over.

“Some doctors do not give enough time to the handover at the end of their shift. They just give a little information and they say the patients are in a stable condition. The Deputy of our department tried to put a policy in place for handover, but it hasn’t been implemented. One day I came onto my shift and I had not had the necessary information regarding a patient with a coronary disease. I was just informed by the patient’s family when he got worse. The problem is that I cannot go around to see all 50 patients individually when I take over the shift in the department.” (AD1 F)

In addition, many participants talked about the effects of the distance that nurses may have to travel to work and poor transport links that effect on their attendance to work.

“The main problem with handover is that the delay, the delay of health care workers on their duty. [Can you tell me why?] We have around 100 nurses who live outside of the city. They arrive work late half an hour on their duty due the transportation and this delay disturbs the work.” (BM F)

Teamwork between the health care workers within the department and the teamwork across hospital departments was a particular element of the data. Many issues emerged from the data that related to teamwork and its effect on patient safety. Respondents discussed the lack of teamwork between health care staff and departments and the consequent negative effects on patient safety. Generally, teamwork was poor and was made worse by poor staff relationships.

“The worst department that I worked with was the ophthalmology department where the patients waited to be seen again by the same doctor who had admitted them the week before, and nobody could change their treatment, as there was a strong culture that decreased the sense of teamwork amongst doctors.....I know a doctor from the ophthalmology department who refused a call from the medicine department as he said he would not answer any call from them as they had failed to answer his call before.”(ANM F)

Other participants talked about the lack of teamwork in their hospital due to the centralisation of authorities within the hospital management structure and managers failing to distribute responsibilities among staff or to involve the staff in crucial decision-making process.

“We do not have the concept of teamwork in which the responsibility and tasks are distributed between staff. The hospital has an older generation of staff who try to keep authority with themselves and away from new staff. It is almost impossible to work as a team with people who have this mentality. Many decisions are taken about our department without any consultation with us.” (BT1 E)

Different issues relating to lack of information and documentation and their effect on patient safety were discussed. For example:

“Even though we complete the patients’ information when they are admitted to the hospital and after their initial examinations, the doctors do not write clear enough information in the patient’s file after their rounds or after operations.” (AN2 E)

“Some information is lost ... the problem happens because we do not have electronic files for the patients.”(BT1E)

Within the subordinate theme of ‘process’ the participants articulated a range of perspectives which, in the main, featured across a continuum so that within each characterising theme both positive and negative elements of practice in relation to patient safety were highlighted. These were driven in various ways by the processes that were embedded in the participating hospitals and focused on organisation of work, medication, prescriptions, reporting errors feedback and communication. The issue of communication is one aspect of patient safety that affects all health care workers and this leads to the next superordinate theme, which focuses on health care workers.

6.3.3 Superordinate theme: Health care workers

A range of issues were identified from the data that were clustered around health care workers and focused in three key areas that the following subordinate themes:

6.3.3.1 Subordinate theme: Professional issues.

6.3.3.2 Subordinate theme: Competency issues.

6.3.3.3 Subordinate theme: Interpersonal issues.

6.3.3.1 Subordinate theme: Professional issues

It was evident from the data that the attitude of staff towards their professional role in general and their responsibilities regarding patient safety specifically had a direct impact on the safety culture of the hospital. The majority of participants talked about the lack of commitment of health work workers towards their work. Participants spoke of experiences where careless and irresponsible staff caused patient safety problems, for example:

“There are 50 of us doctors and I can tell you just 12 or 15 are good at their work whilst the others are not disciplined.” (BS F)

Another participant told how some health care staff was more interested in the private work than the public work of the general hospital. This might be because the salary in the public sector is so low that staff looked for other financial resources. This situation has had an effect up patient safety because it caused staff shortages, as demonstrated in the following quote:

“Doctors who work in the private sector often leave the hospital early as they are more interested in the private work.” (AD2 E)

Furthermore, participants thought that patient safety in hospitals could be affected by staff failing to comply with departments' clinical policies and a lack of accountability, as demonstrated in this quotation:

“Recently, the department has started to put a medical protocol and treatment policy in place but not all of the medical staff complies with them and there is no effective policy for implementing them. Also, there are no measures taken against those that do not follow them.” (AD1 F)

A large number of participants believed that social and cultural factors have an impact on patient safety. They mentioned a number of patient safety problems that they attributed to social and cultural norms that occur in hospitals. For example, many participants talked of patient safety being affected by the shortage of health care services at night due to cultural and social reasons as explained in the following example:

“The majority of nurses are females and they prefer not to work at night due to social pressure to stay at home from reasons as their families or husbands. The society customs and belief affect our work. As we are a tribal society, social factors have an important influence on the staff.” (CN2 F)

In addition, participants revealed a cultural issue regarding gender and the lack of nursing staff in some department. This is because most nursing staff are female, who, according to Libyan culture, are also often responsible the day-to-day upbringing of their children and most domestic tasks. Consequently, many prefer not to work at certain times of the day and days of the week. This can lead to staff shortages, which in turn affects patients care. As a result, participants mentioned that the hospital management prefers to recruit foreign nursing staff rather than domestic nursing staff as they are more committed to the work as they have less social duties not as the Libyans, as illustrated in the following example:

“Many nurses after they get married, they refuse to work afternoon or night shifts. In addition, most of the nurses hate to work on Friday as it is a family day.... To be honest, these problems lead us to having a preference for giving contracts to foreign nurses rather than Libyan ones.” (ANMF)

A further example identified by participants was about the implication of social and cultural factors on patient safety through the unavailability of nursing staff for night shifts as shown in the following quotation:

“We have a major problem with the number nurses in our hospital, especially at night. Sometimes you can only find one nurse servicing a whole department.” (AN1F)

Participants also talked about the effect of social and cultural factors on the decisions of hospital management and health managers. Health care workers may use their social relationship with families of health managers as a tool to discourage them from taking punitive measures against friends or family for misdemeanours and transgressions such as being careless or taking unauthorised absences:

“In our society, social relationships are strong and they have an effect upon work decisions. The chemistry of our society is different from civilised societies. Therefore, we find ourselves facing problems and confrontation with healthcare workers and their families.” (BSF)

What may be considered as unprofessional behaviour is influenced by cultural norms of the Libyan context for example:

“For example, some patients do not have awareness of the effects of exposure to radiation and they may insist on asking me to take an X-ray, even if they do not need it” (BT2F)

In terms of professional issues, the data were clustered within three subthemes, namely:

6.3.3.1 Theme: Accountability issues.

6.3.3.2 Theme: Clinical policy.

6.3.3.3 Staff safety.

6.3.3.1.1 Theme: Accountability issues:

A range of responses was identified around the issue of accountability in the hospital. There was a consensus amongst participants that many of the patient safety problems that occurred in the hospital were due the absence of accountability or the absence of policies relating to accountability of the health care workers.

“Even after a patient dies, there is no enquiry into the real reasons, or questioning over why a particular treatment was given to them.” (BD2 F)

One of the issues that influenced staff accountability was the pressure they received from others. For example, staff talked about external influence overriding clinical judgement.

Furthermore, the same concern was identified from participants, as they perceived that medical accountability and supervision of staff performance could help patients to receive a higher standard of health care and a reduction in the number of medical errors. This was explained in the following example:

“The specialists should review cases with juniors to clarify their responsibilities and give them direction to ensure that patients receive the correct treatment.” (AD2 E)

Some participants talked about the importance of having annual staff performance reviews to ensure that standards are maintained and believed that there should be consequences in terms of contract renewal for underperforming staff:

“We should make assessments of all health workers every year, with points regarding the attendance and scientific performance, and how they have fulfilled their job requirements. These should be reviewed before hospital management decides whether to renew their contracts”. (BS F)

6.3.3.1.2 Theme: Clinical policy

The clinical policies adopted by the hospitals and their application in practice were perceived by participants to have a significant impact on patient safety. The respondents identified key areas of concern including whether policies, protocols and guidelines existed and if so, how they were applied. The lack of such guidelines was the concern of a number of respondents, as highlighted in the following extract:

“Every doctor treats their patients based on their own medical knowledge. The problem here happens especially with new doctors who have little experience, and the lack of a protocol to guide them can lead to them making errors.”

(AD1 F)

It was evident that in some of the participating hospitals, key areas of patient safety, such as infection control and disposal of waste were not given due regard:

“Another topic we talked about it was medical waste and the methods for its disposal. Again, some staff did not comply carefully with the classification of waste and the site of the incinerator was not considered suitable as it was near to the hospital departments.” **(ANMF)**

Where protocols did exist, they were often used in isolation:

“There is a protocol in our department for diagnosing diseases and their treatment and this is followed by all our doctors, however as far as I know, I do not think the protocols are followed in other departments. Whether or not staff follows protocols depends on the head of department”. **(AD2 E)**

6.3.3.1.3 Theme: Staff Safety:

Safety issue has become a big matter for the staff in the Libyan hospitals after the revolution, as many participants were concerned about their safety and security in their work environment. It seems that family members could also pose a threat to the safety of hospital staff and by default, the consequential effect of this was seen to extend to patients,

for example a number of participants talked about violence against staff from patients' family members, especially in emergency cases:

"We do have lot of staff who have had physical violence against them. The patient's family attacked them. This happens more with emergency cases where the patient's family are nervous and do not respect any rules." (BT1 E)

"Some of the medical staff has been threatened with a gun...We need to activate the roles of media, police and court services to solve this problem." (BT2F)

A further issue revealed by participants about the effect of the community on patient safety features in the following example:

"The problem is that some children's' families are not cooperative, even when we tell them about the complications caused by some antibiotics. They insist that you give them the drug or they will assault you."(AA E)

6.3.3.2 Subordinate theme: Competency issues

A diversity of responses identified the effect of health care staff's competency on patient safety and these were grouped in two themes as follows:

6.3.3.2.1 Theme: Training and Education.

Many participants focused on the issue of training to address patient safety. In general, the participants conveyed a negative impression in terms of a lack of availability of training programmes and limited recognition by hospital managers that such training was necessary:

"In our work we do not have a training programme for improving the professional staff. We did not have good training during our studies in the nursing school, and we have to learn from our work experience in hospital. We do not have a training programme but even if there were one we would not

hear about it. {Why}? Because there are inequalities in the opportunities between staff which is very frustrating for us.” (AN1 F)

Another participant said:

“What I want to say to youthe nursing staff need intensive training programmes, but we do not have any training programme here ”(CN2 F)

Furthermore, participants talked about the importance of medical learning policy for improving health care workers’ performance. For example:

“As new doctors, we have tried to have regular meetings and use group discussions on case studies in our department but these steps have not been supported. We wish to learn from the experience and the support of the specialists and the consultants but they do not care. They are busy with other issues. In my opinion, learning is a chain and everyone learns from another one. If I do not learn from others, I will make the same mistakes without being aware of them. Currently, medical learning in the hospital depends upon whether doctors make the effort to study patient files and then ask the specialists for their opinions. A learning policy, as such, does not exist.”(AD1 F)

Another example identified from the participants concerned the attitude and lack of awareness about health care issues of some staff:

“I remember one day I heard a gatekeeper telling someone there was no visiting allowed for ICU during that time, but if they wanted to go to the isolation unit it was fine. So, I told the gatekeeper that letting someone visit to CCU was better than the isolation unit for prevention of the transmission of infection. The isolation department should not be open to visitors!”(ANM F)

6.3.3.2 Theme: Qualification of health care workers

As well as training on specific issues relating to patient safety, a number of participants expressed their concern about the quality of professional qualifications amongst some

health care groups and surmised that sub-standard qualifications had a direct impact on patient safety as illustrated in the following example:

“Unfortunately, the nurses have graduated from a poor institution and these schools receive students with low percentages and with poor educational results. Previously, we had foreign nursing staff, so the quality of their work was better compared to Libyan nurses.” **(BS F)**

While other participants said, some health care staff was working without proper qualifications. This has significance for patients’ safety.

“The hospital management has appointed many nurses without qualifications. For example, I know a man who was working as a gatekeeper who then started working as a nurse. This happened to me: one day when I was sick and admitted to hospital. I was asleep and someone woke me for an injection. When I looked at the nurse, I found it was the same person who had worked as a gatekeeper. I refused the injection and asked to be discharged from the hospital.” **(AT1 F)**

“We have been told that we do not have the qualifications to give any patient an injection or take a blood from them for a test. But, due to the shortage in the nursing staff in the OPD, we had to take on the nurses’ responsibilities with patients.” **(AA E)**

Other participants talked about the importance of appropriate qualifications for certain jobs and the allocation of staff according to their degree to ensure that patients received safe care. This issue is exemplified in the following quotation:

“We are planning to form a committee to assess the qualifications of the technicians and then decide whether they should stay in their current workplace or move them into another position that better suits their abilities”. **(CT1 F)**

Participants clearly believed that there were some issues related to professionalism that directly influenced the patient safety situation in their hospitals. These issues were mainly

about the importance of accountability and supervision of staff. In addition, they focused on the necessity to put clinical protocols in place within hospital departments and to progress educational and training programmes to improve staff performance.

6.3.3.3 Subordinate theme: Interpersonal issues

This subordinate theme included a range of responses regarding interpersonal issues amongst the staff. Participants stated that interpersonal issues have an impact on patient safety in the hospitals. These different issues grouped into 2 themes, namely:

6.3.3.1 Theme: Staff relationship.

6.3.3.2 Theme: Equity and fairness.

6.3.3.1 Theme: Staff relationships

It was noted that the relationship between health care staff within departments and across hospitals has an effect on patient safety. Participants mentioned that the personal problems and disputes between the staff within a department had a negative effect on patient's safety and the quality of health care they experienced as explained in the following quotation:

“When I was working in the emergency department, I received a patient who was having a severe asthma attack. I was busy with her when a doctor asked me to help him with something. I answered him politely, saying that I couldn't do it right then, as I needed to concentrate on the current case. I didn't mean anything by it, it was just a matter of concentration, but that doctor took it personally. I was with him later when another emergency case came in and the patient needed quick action, but the doctor was not willing to work with me in a team as he was still unhappy with me.” (AMN F)

Another example mentioned by participants was the effect of staff relationships and level of cooperation between hospital departments when patients needed consultations or interventions from different departments:

“The personal relationship between heads of departments and their staff determines the quality of services.” (BT1 E)

“In our city, the social factor is stronger than the administration system in the hospital. For example, if someone was absent on his or her duty. We ring him on his mobile. The relationship and communication between technicians are very strong. Also, the communication and coordination between our departments is done through personal relationships not by the administrative relationship.” (CT1F)

Other participants had concerns about staff relationships and the effect this had on communications.

“Communication between the doctors and us depends on the personality of doctors. Some of the doctors are friendly and we have a good relationship and good communication with them, but for others we do not because they are arrogant. Sometimes we need to contact a doctor to ask follow-up questions, but because we may not have a good relationship them, I have found myself hesitating to ask them as I am afraid that they will shout at me.” (BN1 F)

6.3.3.2 Theme: Equity and fairness

Participants expressed their concern about equity and fairness matters and their effect on staff's performance in providing good quality health care. Many participants were frustrated because of perceived unfair or unequal treatment by hospital management and health managers. Duties and responsibilities along with rewards and punitive measures were not dispensed equitably. This situation had a negative impact on patient safety through increased staff absences and lack of motivation and or/care when fulfilling their duties

“In our department, the work is frustrating as some of the health care staff work every day while others do not and can stay at home and still receive the same salary as those who are working. It is not fair.” (AT1 E)

Another participant revealed that the inequity issue that could affect patient safety or the quality of care was the way in which hospital management would allocate resources depending on patients’ relationships with them:

“It is only important for them [hospital management] if the patient is one of their relatives, a VIP or relative to their friends. For example, one day a patient came to our department with a scorpion bite. At that time, we had not had scorpion anti-venom for over a year. The patient happened to be related to our manager who called me to ask me how his relative was progressing. Within 10 minutes the anti-venom was in my hands.”(BD1 E)

Further evidence of this practice can found in the following:

“In our hospital, the management does not pay attention to patients unless the patient is close relative to them.” (BN1 F)

From these data extracts it can be seen that a number of the participants were concerned about the effects of interpersonal issues on patient safety. Some participants’ concerns were around the effects of lack of staff commitment and responsibility toward their duties and patients. Others participants mentioned that the relationship between health care workers could affect patient safety. Furthermore, some participants believed that patient safety could be affected by inequities in the way management allocated resources to different patients.

6.4 Summary:

The qualitative data that is presented in this chapter offers rich and comprehensive information about the main factors that affect patient safety in Libyan hospitals. The qualitative findings were obtained from interviewing different health care workers to

discover their perceptions about patient safety culture in different Libyan hospitals and work places. IPA was used in analysis of the data with interpretive steps in which the researcher engaged with the data, and tried to make sense of the interpretation of the participants. The findings revealed that many patient safety concerns and issues expressed by different participants were due to social and cultural factors. These concerns and issues were categorised under three super ordinate themes mainly about the politics and policy issue, organisational system, and health care workers issues. Furthermore, the qualitative findings showed that participants were concerned about patient safety issues related to the political upheaval and implications of the revolution, such as the shortage of medical supply and health care staff. In addition, the qualitative findings identified many patient safety matters related to the poor hospital management. Furthermore, the findings revealed that patient safety was affected by factors such as investigation issues along with medication and prescription problems. Moreover, participants talked about the effect of human relationships and effective communication, teamwork and staff handover on patient safety. Having analysed the qualitative data, the findings confirmed the findings from the quantitative survey in that several dimensions of the measures of perceptions of patient safety culture from the workers were found to be very weak.

However, the qualitative findings differed from the quantitative findings in that it also provided information regarding several issues that had not become known in the quantitative survey, which also had a negative impact on patient safety. These included the political and policy which addressed the implication of political changing; administrative matters; hospital's environment concerns; organisational issues which were related to structure and process; health care workers issues and lastly the effect of community and family on patient safety.

Chapter Seven: Discussion

7.1 Introduction:

This chapter aims to provide a comprehensive discussion of the key results which were obtained from the quantitative research (survey) and the qualitative research data (interviews). The key findings of both phases of the research will be related to the literature, identifying the significant issues that impact upon patient safety culture in Libyan hospitals and indicating where there are current knowledge gaps and possible additional questions for future research. The survey findings provided an overview of the situation for patient safety culture in Libyan hospitals, and reflected the state of the patient safety culture context before the uprising in Libya. The findings from the interviews, however, reflected the state of patient safety culture both during the uprising and following the removal of the Gaddafi regime. In this chapter the findings of the 2 study phases will be considered in tandem in order to address the following thesis research questions:

7.2 Research question 1: What is the perception of patient safety culture among health care workers in Libyan hospitals?

7.2.1 Overall Perception:

Lardner (2003) argued that safety culture could have an influence upon the view of the world of both individuals and groups of workers within health care organisations. Both survey and interview results of the current study revealed that the perception of patient safety culture amongst health care workers was that it was weak and needed to be improved. The survey data showed that over 50 % of health workers in the 3 hospitals had a negative overall perception of patient safety. The survey found that the systems and

procedures in the hospitals were not good at preventing medical errors from happening to the patients. This result is similar a study conducted by Aboul-Fotouh et al. (2012) in Egypt, which used the same questionnaire as the current study to assess the perception of patient safety culture amongst a sample of health care staff in a teaching hospital in Cairo. Aboul-Fotouh et al. (2012) found only 33.3 % of health care staff had a positive perception in relation to the overall safety culture, reflecting the poor state of patient safety practice and revealing a need for improved safety practice in Egypt. The Egyptian study and the results of this Libyan study confirm that there are negative perceptions amongst health care workers and, hence, show a need for improved patient safety practice within the Arabic medical context in general.

Furthermore, the Phase 2 interview study revealed a strong negative perception of safety culture amongst the health care staff in the 3 Libyan hospitals. The interview data also found that neither patient safety departments nor patient safety officers were in place to deal with patient safety issues in any of the 3 hospitals. These results were supported by Wilson et al. (2012) who concluded that poor safety practice is considered a serious problem in hospitals in developing countries and it should be considered a top health priority for these countries.

It is clear that health care workers held negative perceptions because of the lack of a patient safety system and, indeed, the lack of a positive safety culture within the working environment of the 3 hospitals. This viewpoint is supported by Reason's (1995,1997) work, which suggested that one of the main elements that an organisation requires to maintain an effective safety culture should be the existence of a safety information system for the collection, analysis and dissemination of information related to incidents. He also advocated for the gathering of information from regular, proactive checks undertaken on the system. The results from the survey and interviews showed that the approach taken in

dealing with patient safety issues could be considered, from the perspective of the work of Westrum (1993) and Parker (2009) and Hudson (2001), as 'immature'. Due to the lack of appropriate resourcing, the problematic state of the patient safety culture in Libyan hospitals can be considered as 'pathological'. A pathological organisational culture is one that is at a stage of immaturity, when information is hidden and failures are covered up. Indeed, within such an organisation, new ideas are actively crushed and sharing and learning from others is actively discouraged.

The current study found sharp change in the perceptions of the health care workers during the period of the research. A considerable number of the answers of the participants were neutral in the survey study, which was conducted during the period when the old regime was still in power. However, the majority of participants in the phase 2 qualitative interview study held a strong negative perception of safety practice, perhaps because people were more prepared to speak open and freely without fear. Another, explanation for discovering more issues in Phase 2 could be the deployment of a different methodological approach in collecting data from interviews, where individuals are given the opportunity to elaborate on their responses.

The qualitative interviews were conducted during a time when the country was going through very significant political change which led to the overthrow of Muammar Gaddafi after 42 years of leadership, as outlined in Chapter 2. Thus, it was no surprise that the findings of the qualitative study were coloured by this momentous episode which had a significant impact on patient safety in hospitals. Indeed, health care workers reported that the political upheaval had an important effect on patient safety both during and after the revolution.

Liolos (2012) highlighted some of the crimes of the Gadaffi regime and how the aggressive dictatorship was acting violently with Libyan citizens. Indeed, prior to the uprising, Libyans had experienced shocking levels of human rights violations, and lived under constant fear of the regime and, on a number of occasions, political opponents of the government had been publically executed (Mayer, 2013). So, it was perceived that there could be appalling reprisals for publically criticising the government over its handling of the National Health Service.

The issue of patient safety had already been politically sensitive, particularly following the outbreak of AIDS amongst patients in the Libyan Al-Fateh Children's Hospital (see Chapter 2 for more details). The shift in perceptions, as reflected in the participant responses of this study, could have two possible explanations. Firstly, as the survey was completed prior to the uprising, it would appear that Libyan health care workers were reluctant to give their full, honest perceptions of patient safety in Libyan hospitals. As such, the change may be explained by the fact that staff were more prepared to speak up about patient safety issues after the revolution when fear of reprisals was less evident. Secondly, it could be that the patient safety culture deteriorated during and after the uprising, and there is certainly evidence, within the interviews, of extreme shortages of staff and equipment that would authenticate this explanation.

7.3 Research question 2: Why is patient safety culture practice very weak in Libyan hospitals?

The results of the quantitative and qualitative research revealed significant factors and issues behind the perceptions that there was a poor safety culture in the 3 hospitals, as following.

7.3.1 The influence of hospital management

One of the major significant factors which resulted in a negative perception of patient safety culture in Libyan hospitals was the low level of support of hospital management for patient safety issues. Participants in both the survey and interview studies revealed negative perceptions about the level of support of the management in their hospitals in relation to patient safety. The survey results showed that only 42% of health care staff agreed that the management of their hospital had a commitment to, and active promotion of patient safety.

Furthermore, the interview study showed that participants perceived that the management of their hospital did not have patient risk management and safety systems in place for the development of patient safety measures that would protect patients. Study participants claimed that hospital management only tended to act after a patient safety problem had occurred.

This result is supported by El Taguri et al. (2008) who pointed out that one of the main weaknesses of the Libyan health care system was that it was managed by a crisis approach rather than through a risk management approach that reduced patient safety incidences in the first place. From these findings, it appears that the perception that there was a poor patient safety culture in Libyan hospitals could be attributed, at least partially, to a lack of concern for patient safety issues in the hospital management. The work of Katz-Navon et al. (2005) ; Kagan & Barnoy (2013) in Israel, both of which used questionnaires to assess safety climate in hospitals, demonstrates that these issues are relevant to other developing countries. Both studies showed that fewer medical errors were experienced in hospital units when safety was a high managerial priority.

Indeed, the work of Alahmadi (2010), undertaken using quantitative research to assess patient safety culture among health staff of hospitals in Saudi Arabia, used the same questionnaire adopted in the current study. He concluded that a positive patient safety culture in a hospital does not exist unless the hospital management is committed to ensuring patient safety (Alahmadi, 2010). However, the findings of the current study were not consistent with another Arabic study that used the same questionnaire that was conducted by El-Jardali et al. (2010) in Lebanon hospitals. They identified that Lebanese health care workers were positive about the support they received from their hospital management in relation to patient safety issues in various work areas. This could, however, be because of methodological limitations that might account for differences in the findings. The current study used a stratified sampling method to gather data from various health care workers about the management support for patient safety in their hospital. The Lebanese study, on the other hand, used a random sample of health care staff which may not have been representative of the full range of health care disciplines, and so certain perspectives on the issue of patient safety may not have been reflected in the findings.

In comparison to other studies, the results of the present study are distinctive in that they revealed an additional issue relating to the approach of the hospital management. According to the respondents, hospital management was unfair in their dealings with health care staff and this had an effect upon staff performance. The qualitative data revealed that health care workers were frustrated because of perceived unfair or unequal treatment by health managers. Duties and responsibilities, along with rewards and punitive measures, were not dispensed equitably. This situation had a negative impact on patient safety through increased staff absences and lack of motivation and/or care when fulfilling their duties. This result reveals the negative effect of social relationships and culture on hospital organisation in the Libyan context. Whilst nepotism has been reported in many

different cultural contexts (Arasli et al., 2006), it is particularly intense and widespread in Libya given its tribal past and the loyalty shown to family ties. Indeed, a common expression in Libya notes the importance of ‘warah katif’, a supportive shoulder to lean on. Moreover, the qualitative data demonstrates that poor hospital management had an additional negative influence on patient safety because it leads to lack of accountability. There was a consensus amongst health care staff that many of the patient safety problems that occurred in the hospital were due to the absence of accountability or the absence of policies related to clinical governance. Respondents indicated that policies for the review of the performance of health care staff were not maintained or even applied in hospital departments. They spoke of a variation in medical practice with no supervision of performance. It is clear that patients could be harmed due to the absence of medical policy, possibly leading to malpractice.

The importance of clinical governance issues in health care organisations was addressed by McSherry et al. (2001) who suggested that some patient safety incidents are caused by defective systems and processes. In line with this finding, McSherry (2004) suggested that health care organisations need to adopt practice development and health care clinical governance approaches that help in the achievement of good health care outcomes for patients. Libyan hospital management should develop medical practice and improve patient safety outcomes through the adoption of clinical governance policies in all hospitals to assure that all patients receive a safe and good standard of quality of health care and to reduce patient safety incidents. The importance of these policies were shown by Shipton et al. (2008) who undertook a study in the U.K and revealed a link between staff perception of senior management leadership effect in that the more committed managers were to clinical governance, the fewer the complaints from patients. The consequences of poor managerial practice were far reaching in the three hospitals that were

the focus of this study, and in some respects were as pervasive as cultural issues. This was particularly evident in relation to the way that they responded to errors.

7.3.1.1 Punitive response to errors

A key finding was the prevalence of a punitive response to error. The survey showed that approximately 70 % of respondents perceived that, in dealing with medical errors, there was a punitive and blame focussed work environment in Libyan hospitals. Similarly, the interview findings indicated that respondents perceived that, when patient safety problems were reported, a punitive approach from health managers and a culture of blame towards health care providers were the actions most likely to unfold.

These cultural and social barriers appear throughout a number of different Arabic health care setting contexts as highlighted in studies conducted in Lebanon (El-Jardali, 2001) ; Saudi Arabia (Alahmadi, 2010); and Egypt (Aboul-Fotouh et al., 2012) that used a questionnaire and involved different health care staff to assess their attitudes toward patient safety culture. The findings of these 3 studies were similar in that they showed that health care workers had negative perceptions of the dimension of non-punitive response to errors in the work environment of their hospital. As a result, staff tended to avoid reporting their mistakes because they were afraid they could lose their jobs or, at the very least, be subject to some form of disciplinary action (Mrayyam et al., 2007& Alahmadi, 2010). These results were supported by Jha (2008) who suggested that there are some common factors that lead to poor safety practice in the medical context; one of these factors is that managers and healthcare workers are often more interested in individual accountability, rather than the development of a systems based approach to patient safety that can address latent factors that may be failing to prevent the occurrence of an error. The findings of the

current study add another significant dimension to a punitive error response to health care workers. The qualitative data showed that Libyan health care workers were concerned about confrontation with the families of patients. Furthermore they were concerned about losing their medical reputation with their patients as result of false ideas amongst families about the medical errors within the Libyan community. Without doubt, such a culture can have negative implications for patient safety; if a reduction in medical errors in Libyan hospitals is an urgent issue, then it is not helpful when staff are reluctant to speak up or unwilling to reveal their mistakes because of a culture negatively of towards errors.

Leape (2009) proposed a number of measures for health care organisations to help in changing a false culture for errors in the medical context. Firstly, he proposed a transformation of the organisational environment from secrecy to transparency. Secondly, he suggested that no organisations should be using punishment as a way to solve their medical errors. The third proposal was that organisations should be shifted from a focus on personal performance to a greater facilitation of inter-professional teamwork. Finally, Leape considered that health care organisations ought to adopt a new vision for the analysis of the root causes of medical errors by considering them as part of a system failure rather than individual errors.

7.3.1.2 Poor feedback to errors

Another major influence of the hospital management leading to poor patient safety practice, shown by both the survey and interview results, was poor feedback and communication to health care workers to help them improve their patient safety practice. The survey indicated that only 35.74% of participant answers were positive with regard to the provision of feedback about patient safety matters; the majority of responses to the

survey indicated that patient safety suggestions were not being used to change the system in the hospital. Indeed, this lack of feedback to health care workers could affect their willingness to make patient safety reports in future, if they felt frustrated at a lack of awareness of a constructive response to their previous reporting of medical error. Lundstrom et al. (2002) and Benn et al. (2009) are in agreement in acknowledging the importance of an active feedback response from hospital management to hospital safety reports; they agreed that it is a crucial factor that reinforces a sense amongst staff that their reports and recommendations have been considered useful and helpful for improving patient safety. Results such as these put patient safety in an unacceptable situation because, as indicated by a number of authors, ineffective communication and a lack of feedback of medical errors can threaten the health and safety of patients in hospitals (Baker et al., 2004 & WHO, 2007).

Furthermore, the study findings correspond with other studies that have revealed that hospital managers have tended to be reactive rather than proactive and were not overly concerned about patient safety issues until an accident happened (Clarke, 1999 & Cooper, 2000). The lack of feedback and communication about errors in Libya could be as a result of health managers not visiting hospital work areas very often, and them having lower levels of interaction with their health care staff. Thomas et al. (2005) conducted randomised research examining the role of Executive Walk Rounds (EWRs) and their effect on patient safety culture in hospitals. Their research concluded that the presence of effective leaders amongst the hospital staff was important for enhancing patient safety practice. It can be concluded from the findings of this study that the absence of a patient safety culture within hospital management and a lack of support from health managers themselves are considered weak areas that need improving so that better safety practice could be embedded within Libyan hospital. Another lack of support for patient safety in

hospitals could be also as a result of insufficient staff numbers in hospitals to provide proper and adequate health care to the patients.

7.3.2. Staffing level:

Another negative factor that was identified by this study was related to there being inappropriate numbers of health care workers in Libyan hospitals to provide good health care for patients. For example, the survey results indicated that only 50% of health care workers answered that hospital departments have enough staff to manage their workload. This shortage of health care staff in Libyan hospitals could be very critical for patients in terms of delay in receiving health care services that could be life threatening, especially in emergency cases. Also, the qualitative study revealed that in some areas there is a lack of availability of health care workers from a particular discipline due to no relevant specialist being available or poor workforce planning. This finding corresponds with other research carried out by Al-Kandari & Thomas (2009) and Al-Ahmadi (2009) that both used a survey to assess the perception of health care workers toward safety culture in hospitals in Kuwait and Saudi Arabia. These studies found there was a correlation between shortage in staffing levels of hospitals and the number of patient safety incidences.

Furthermore, the interview in Phase 2 of the study indicated that the shortage of health care staff in the 3 hospitals was as a result of imbalance in the distribution of human resources to the different work areas. Department heads complained that, while other departments were overstaffed, their departments lacked staff. It was reported that poor organisation could cause disruption and delay in the provision of health care services to patients, with an atmosphere of uncertainty leading to staff carelessness and failure to report for duty. This situation was seen to create confusion for the staff in the achievement

of their duties, which could lead to patients not receiving proper health care or missing treatment. The interview data revealed significant factors that caused the imbalance of the staff in Libyan hospitals, such as the social and culture context in Libya, with pressures from family and social networks. Such socio-cultural factors influenced the decision making of health managers and hospital directors within both the processes of recruitment and distribution of health care staff between workplaces. For example, some respondents spoke about there being certain health care workers having been recruited in the hospital based on their relationship to the director of the hospital rather than their qualifications and capabilities, and the need of the departments. These results correspond with the work of Zurn et al. (2002) that highlighted that an imbalance in staffing is a common concern in both developing and developed countries that has an effect upon the quality of health care services in hospitals.

Moreover, the qualitative study revealed significant implications from the changing political scene in Libya that had had a negative impact on the staffing levels in the three hospitals. For example, the interview results showed that patient safety was affected negatively by the reduction, and in some cases, cessation of health care services in hospitals due to staff shortages that occurred after foreign staff left Libya when the uprising started. In addition, the Libyan staff numbers diminished as female doctors and nurses did not attend work because they feared for their safety, particularly during the first days of the uprising. This situation reveals that the Libyan health system was not prepared and could not cope with these problems. The implication of the uprising for patient safety was reported by Elourfit (2012) who mentioned that there was a severe shortage in medical staff and attempts had been made to compensate for this with cover provided by volunteers and unqualified staff, such as medical students. The lack of staff level and limited

experience of emergency staff in hospitals could also influence other aspects such as communication between the health care staff in their respective work areas.

7.3.3 Inter-professional communication

The study findings of both the survey and the interviews showed that inter-professional communication between Libyan health staff with regard to medical errors is very poor. The survey found that only 35.74% of health care staff agreed that there was openness for discussion about patient safety issues in their work areas. This result is in line with other Arabic studies conducted by (Al-Ishaq, 2008 ; Alahmadi,2010; El-Jardali et al.,2010; Aboul-Fotouh et al.,2012 ; Hamdan & Saleem, 2013) in different hospitals in Qatar; Saudi Arabia; Lebanon; Egypt and Palestine, respectively. All of these studies used a survey to examine patient safety culture, and their research found there was poor communication and a lack of openness for discussion of patient safety issues. These results can be interpreted as showing that hospitals within the complex social and cultural realities of the Arabic context have a tendency to suffer from a poor communication which impact on safety culture; it is clear that there is a need to establish more open, free discussion of patient safety issues in their work areas.

Furthermore, the qualitative data showed that the rigid medical hierarchy and interpersonal issues had a negative impact upon communication between different professional groups. The interview data identified poor quality communication and interaction between senior and junior doctors and health care workers in the exchange of information regarding patient treatment and safety issues. These finding matches the findings of research conducted by Reader et al. (2007) which involved a cross-sectional study in four hospitals in the UK to investigate whether nurses and doctors in Intensive Care Units (ICU) had a

shared perception of interdisciplinary communication. Their study showed that nurses in the UK also reported that there was a low level of interdisciplinary communication and openness between them and doctors. Similarly, the UK study also revealed that the levels of communication and openness between trainee doctors and senior doctors were low. So, in both a developing and developed country medical context the patient safety culture was affected by the quality of communication between professional groups. According to the qualitative study this can be interpreted to a lack of homogeneity in the style of interaction of the various medical disciplines, and personal issues, such as levels of confidence in dealing with issues of power.

Indeed, the interview results from this study showed that patient safety was affected negatively by poor relationships and personal disputes between staff, and the personality of certain heads of departments was preventing staff from being open and discussing such issues in their work areas. Likewise, these barriers to communication could lead to staff failing to exchange important information about patient treatment. Concern over this issue was highlighted by other researchers, such as Leonard et al. (2004) who indicated that communication failures can lead to inadvertent patient harm, particularly if there are problems with relationships between health care staff within different professions and at different levels. Research by Baker et al. (2004) considered the issue of communication. Their research involved 5 hospitals in Canada and an analysis of a sample of 3,720 hospital admission patient charts in order to study the incidence of adverse events in hospitals. Their study findings suggested that ineffective communication and a lack of feedback of medical errors may lead to a threat to the safety of patients in hospitals. This is supported by other authors, such as Braaf et al. (2013) who concluded that patient safety in hospitals could be affected by poor organisational communication in transferring information from managers to health care workers.

As well as poor communication between individuals, the qualitative data of the current study also revealed there was a threat to patient safety as result of poor communication and coordination measures between some of the hospital departments and a lack of adequate inter-departmental notification systems. This challenge was highlighted in a report by WHO (2009) which suggested that poor communication systems for the transmission of patient information in hospitals could affect patient safety.

Ineffective communication between professionals of different disciplines within Libyan hospitals could be due to the absence of formal communication policies and a failure to use simple and effective communication tools. Implementation of such policies and measures was proposed by other authors, such as (Pronovost et al., 2003; WHO, 2007 & Clark et al., 2009), all of whom suggested that hospitals should ensure the adoption of a standardised policy and communication tools. It can be noted that patients in Libyan hospitals could be under threat and patient safety at risk due to the absence of effective lines of communication which may contribute to many patient safety incidences. This poor communication and lack of openness between staff could also have a negative influence on other patient safety culture practices such as the teamwork within Libyan hospitals.

7.3.4 Teamwork

It was agreed by patient safety researchers that the adoption of a teamwork approach in health organisations has many potential benefits including improvement in the quality of patient care provided and a reduction in errors (Barrett et al., 2001). The quantitative and qualitative studies showed some disparity over the dimension of teamwork between the staff within departments. The survey findings revealed that teamwork within departments

had the highest average positive answers score of the patient safety culture dimensions with almost 60% showing a positive perception of teamwork. The interview revealed that respondents were not positive about teamwork within their departments; however the respondents mentioned that it had improved because of the unity people felt during the revolutionary days. These differences in the state of teamwork in the 3 hospitals revealed that teamwork was a dynamic process that depended on the interpersonal relationships between the staff rather than the adoption of a formal policy towards teamwork.

Furthermore, the survey data found teamwork across hospital departments was not effective, since more than half of health care workers who had taken part in the survey (46%) thought that patient safety was affected negatively by poor coordination and a lack of cooperation between hospital departments.

This finding is consistent with other studies conducted by Jardali et al. (2010) and Fotouh et al. (2012) that used a questionnaire to examine patient safety culture in Arabic hospitals and showed that teamwork across hospitals achieved one of the lowest composite scores of patient safety culture dimension areas. A lack of teamwork in practice could be partly due to poor communication between the staff and weak leadership, and this may have discouraged health care staff from working together effectively as a team. The need for good leadership, with strong communication skills to impact upon teamwork amongst staff, was shown by the study of Bristowe et al. (2012). They conducted focus group discussions in four large maternity units in England to assess the experience of staff in relation to the effectiveness of teamwork in medical emergencies and found that effective teamwork for the provision of good quality health care for the patients required good, communicative leadership.

Similarly, it could be argued that poor safety culture in the work environment of hospitals reduced the teamwork practice. This argument was supported by another Arabic study conducted by AbuAlRub et al. (2012) that used a questionnaire with a convenience sample of 381 nurses in a Jordanian hospital and found there was a positive correlation between safety climate and teamwork.

Another possible explanation for poor teamwork practice in the 3 hospitals in Libya is the lack of training programmes for health care workers to work as a team. In fact, empirical research has concluded that training programmes on teamwork for health care workers leads to improvement in the application of teamwork in hospitals. For example, Grogan et al. (2004) studied different departments of an American university hospital that adopted the aviation Crew Resource Management (CRM) style of training in sessions related to the creation and management of teams. The study involved a total of 489 staff in the CRM training session and it was followed by the completion of a questionnaire. The study found that the staff agreed that such training sessions could reduce incidences of patient safety problems and could improve the patient safety practice in hospitals.

The qualitative study added weight to the survey findings and revealed that teamwork across hospitals was determined by the relationship between the head of department and the staff. The interview data explored the reasons behind the lack of teamwork in hospitals and found that, often, it was because of the centralisation of authorities within the hospital management structure and the failure of managers to distribute responsibilities among staff or to involve the staff in crucial decision-making processes and exchanges of insights from their medical experience. Also, it could be argued, based on the result of the current study regarding poor communication within departments that the poor relationship between the

heads of hospital departments had led to a reduction in the level of coordination and cooperation between departments.

The problems with teamwork are well documented by authors such as McSherry et al., (2012) who argued that effective teamwork for the provision of good quality health care for patients requires good leadership. Bristowe et al. (2012) also studied leadership in conducting a focus group discussion in four large maternity units in England to assess the experience of staff in relation to the effectiveness of teamwork in medical emergencies. Their study findings showed that good leadership was essential for effective teamwork for the provision of good quality health care for the patients in medical emergencies. The present study found teamwork was weak in the 3 Libyan hospitals and needed to be improved. Significantly, however, it was noted from the interview data that teamwork and communication between staff had improved, particularly during the days of revolution. This change could have occurred because there was strong unity and cooperation between people during the time of the uprising. Indeed, unity between Libyan students, studying in the UK at that time, could be noticed, with them becoming closer and arranging fundraising events to send aid to Libya. The improvement of teamwork between health care staff can have an implication for other hospital practices, such as the handover procedure.

7.3.5 Handover

The findings of both the survey and interview study found that the quality of handover was another area that had an effect on patient safety in the 3 hospitals. The survey data found there were a considerable number of health care workers (60%) who were not satisfied with the procedures for handovers between staff shifts and at the time when patients were

moved between departments. These findings indicate that poor handover at hospitals could be a threat to the safety of patients in Libyan hospitals. In regard to handovers, WHO (2007) have reported that many patient safety problems and adverse events could happen in hospitals as result of ineffective communication when a patient is transferred from one health care provider to another, or from one department to another. Furthermore, the qualitative data from the second phase of the current study identified significant factors that had an effect on the quality of handover. For instance, there was a lack of staff commitment to their handover duties, and some often failed to come to work on time. Such unacceptable behaviour can lead to gaps and interruptions to the provision of health care services for patients that could lead to delay and/or patients missing some or all of a particular course of treatment.

This explanation was highlighted by Cook et al. (2000) who expressed their concern about the gaps that can occur in the continuity of patient care during handovers, and they asserted that it is a 'high-risk' process. Moreover, the Phase 2 qualitative findings revealed that the absence of any fixed policies for handover procedures across all hospital departments had resulted in a poor standard of patient safety and that, even when a policy was in place in a particular department, it was evident from the interview data that there was a lack of compliance during the time of handover.

The current study findings also showed that hospital handover procedures were carried out in an informal manner, and that they were inconsistent without the use of standardised documentation. It is clear that the current handover procedures in Libya, and their lack of standardisation, could have a negative effect on patient safety as important information on the treatment of patients can be lost and the chances of medical error increased. This position is supported by Nagpal et al. (2010) and Siemsen et al. (2012) who concur that the absence of formal structured handover procedures in hospitals could lead to negative

effects as a result of communication problems with patient information. However, for Libyan hospitals to have safer handover practice they should adopt formal handover policies and standardised forms and instruments for application within and between hospital departments. Measures such as these can improve the communication and teamwork between medical shifts and reduce the number and severity of medical mistakes, as well as help overcome difficulties caused by the varied medical practices of different professional groups (Baker et al., 2004 & Manser, 2009).

7.3.6 Variance in safety culture practice

The current study identified further factors that led to poor patient safety culture in the 3 hospitals. The quantitative data found that there were significant variations in the patient safety culture practice between the worker health care disciplinary groups, departments and 3 hospitals under study.

7.3.6.1 Disciplinary Variance

The quantitative data analysis used one way ANOVA and Post-tests to indicate which health care groups, departments and hospitals differed significantly from the mean. The survey results showed that the perceptions of overall safety of doctors were more positive than other groups, such as nurses, technicians, pharmacists and managers. These differences in the perception of safety culture could be explained by the fact that a considerable number of nurses and technicians graduated from nursing schools where the quality of the education system and training programmes was sub-standard. This explanation was also given by Shukri (2005) who asserted that many patient safety

problems in Libyan hospitals were connected to unqualified nurses, who work with a low level of knowledge and are unskilled and incompetent. Furthermore, the qualitative data of the current study confirmed that the poor perceptions of safety among nursing staff was due to some of them having practiced as a nurse without a profession qualification or license. It is also possible that doctors are more relaxed towards patient safety and do not always note a problem whereas nurses may pay more attention to safety may be more likely to identify problems. However, at this point, these explanations rely on conjecture and therefore further research is required to explore these possible explanations. That said, it is the case that such differences in the perceptions of safety between staff could have a negative effect on patient safety practice. This concern was raised by Clarke (1999), who found that the key element in reducing safety problems in an organisation is the importance of managers and workers sharing the same perceptions about the importance of safety issues.

A significant finding from the survey was that health care workers who were working more than 40 hours per week were more likely to report errors than those who worked less than 20 hours per week. Similarly, a significant finding from the quantitative data analysis was that health care staff who worked more than 40 hours per week had more negative patient safety experiences with patient handover and transition than those who worked less than 40 hours. This may reflect the implication of tiredness and fatigue on the staff due to the shortfall in staffing levels in Libyan hospitals, which have put more workload pressure on staff and made them work longer hours which may have decreased their ability to concentrate on carrying out their duties effectively.

These results concur with other research in the area such as studies by Rogers et al. (2004) and Scott et al. (2006). These studies were conducted in the USA and described the work

patterns of nurses, to determine if an association existed between the occurrence of errors and the hours worked by the nurses. Their research found that nurses consistently worked longer than their scheduled hours and maybe for extended further periods. Longer work duration increased the risk of errors and near errors and decreased the vigilance of nurses. Their results indicated that tiredness and fatigue due to workload and long working hours were factors that had a negative influence upon the performance of health care staff during patient handovers and transitions. This result was also supported by the research of Rogers et al. (2004) who found that nurses that worked more than twelve hours a day, that worked overtime or that worked more than forty hours a week, were significantly more likely to make errors.

Another significant finding from the survey was that doctors had more positive perceptions about non-punitive response to their errors than other health care workers groups. This result could be linked with the finding from the phase 2 qualitative data that hospital management did not deal fairly and equally with their staff due to differential power relations, with doctors maybe having stronger relationships with key figures in the upper levels of management, again this explanations needs to be explored further.

7.3.6.2 Departmental variance

The survey findings also indicated that some departments were more likely to report their errors than others and this variation was consistent across the 3 hospitals. Surgical and obstetrics departments reported their errors more than other departments such as radiology. These differences could be explained by the fact that a greater mix of professional disciplines were employed in the surgical and obstetrics departments with a higher ratio of

nurses and junior doctors who, according to the literature, are more inclined to report their errors than other staff. This view is comparable with the research of Vincent et al. (1999) who used a questionnaire with 42 obstetricians and 156 midwives. Their research showed that there were variations between the staff in their reporting of their errors. For example, the midwives reported more errors than doctors and junior doctors were more likely to report their errors than senior doctors. Another possible explanation for a higher level of error reporting in surgical and obstetrics departments could be that they deliver a complex array of services and, along with a high level of workload pressure, were more likely to experience medical errors than the radiology department.

A further significant finding from the quantitative data analysis was the difference amongst health care workers in different departments in terms of levels of openness and communication. For example, the survey revealed that health care staff in laboratory departments was more open and prepared to speak up and discuss patient safety issues than those based in medical departments. Further clarification was provided by the interview data, with laboratory departments being shown as having a positive communication culture with a good communication policy in place and applied to handover between medical shifts.

The differences between these two departments can also be explained by the fact that the laboratory departments did not have a variety of disciplines at different professional levels; they mainly employed the same health care professional technicians, and this could lead to more effective communication between them. This is compatible with other research findings from authors such as Baggs (1999) and Leonard et al. (2004) who agreed that inter-professional communication between different care professional groups presents a significant challenge that can affect patient care negatively.

The study also found there was a significant difference in the experience of patient handover and transition between hospitals departments. The findings identified that the ophthalmology departments had more negative experience with patient safety incidences during patients' handover procedure than pharmacy departments had.

Furthermore, the interview findings showed that the reason for departments having more patient safety incidences was because of a lack of communication and teamwork within the department and across to other hospital departments, and that this had a negative effect on patient handover. This result was supported by other studies, such as the work of (Nagpal et al.,2010; Nagpal et al., 2013 & Pezzolesi et al., 2013) that all showed that better communication and teamwork were important for improving patient handover and transition procedures.

7.3.6.3 Hospital Variances

One notable finding that emerged from the data was the significant differences in regard to patient safety culture dimensions within and between the 3 hospitals in the study. The differences were evident in relation to particular dimensions of patient safety culture, namely: the overall perception of safety, the frequency of event reporting, organisational learning, the levels of teamwork within and across hospital departments, communication and openness, feedback to error, management support for patient safety, and hospital handover procedures and practices. These differences in patient safety culture between hospitals were also found by another recent Arabic study conducted by Alazab (2013) to assess patient safety culture in 6 hospitals in Kuwait. It found there were significant differences between these hospitals in terms of the compliance of their departments with established criteria for patient safety and quality improvement.

Furthermore, quantitative data analysis of the current study found that Hospital B was the weakest hospital in terms of the patient safety culture dimensions. Moreover, the interview study confirmed this result, and its findings showed that the reason behind the weakness of patient safety culture dimensions in Hospital B was mainly due to poor hospital management and the lack of commitment and support to address the issue of patient safety. The respondents in the interview study revealed that one of the main reasons that led to Hospital B having the poorest patient safety culture was due to issues surrounding the poor working environment within the hospital, which had a negative impact on the performance of health care staff.

The sample identified that the main building of Hospital B was undergoing maintenance and consequently, departments had moved to other buildings, which were not suitable or well equipped to provide good and safe health care for patients. This issue was addressed by Elkhammas and Emsallem (2006) who stressed the need for improvement to the Libyan health care system and concluded that the hospital working environment needed to be improved and that this could play a part in helping to rebuild trust between patients and their health care system. This result is consistent with the Commission of Health Safety (1993) which described one of the main characteristics of organisations with a positive safety culture as having good working conditions and procedures.

Furthermore, the survey data of the study showed a variation in the level of team working within departments. For example, the survey revealed that the perceptions of teamwork within departments amongst Hospital C staff were more positive than the other 2 hospitals. Further analysis of the qualitative data clarified that there were stronger interpersonal relationships between the staff in Hospital C based around their common backgrounds and a strong sense of community formed through tribal affiliations and this offers some explanation for the apparently stronger teamwork within its various departments.

Moreover, analysis of the survey data showed that Hospital C was better than the other 2 hospitals in most of the patient safety culture dimension practices measured in the study. For example, it was identified that the hospital management in Hospital C was supportive to patient safety issues compared with the other hospitals. This high degree of support and commitment from Hospital C management also had an influence upon the perception of their health care workers, which was positive compared to perceptions of workers in other hospitals. Another possible explanation for the difference was the fact that Hospital C was the biggest of the three and was one of those Libyan hospitals that had been categorised as a medical centre that had a good work environment and, subsequently, was better resourced and equipped than the other two hospitals (HDRC, 2011).

However, the interview data found the perception of health care workers was negative toward patient safety culture in Hospital C after the revolution, as the health care staff thought that patient safety had been influenced strongly by the shortage of health care staff, with many foreign health care staff having left the country, as well as the problem of the lack of drugs and medical materials during that time.

The study indicated that the dimensions of organisational learning and continuous improvement and hospital management support for patient safety were significant in predicting patient safety culture in the three hospitals. It found Hospital C was better than others. This could be because hospital management was open and cooperative with learning and training policy. Indeed, Hospital C was one of the hospitals which was established by WHO (HDRC, 2011) in Libya to be a training centre for mass casualty management training for paramedical staff during the uprising.

Furthermore, multiple regressions test of the survey data showed the dimension of organisational learning was significant in predicting patient safety culture in the three hospitals. This result agreed with the findings of another Arabic study conducted by

Alahmadi (2010) in Saudi Arabian hospitals, to examine the perception of the health care staff on patient safety culture. This similarity in results between the 2 studies is a reflection that the staff shared the same perceptions on the importance of the dimension for improving patient safety culture in their hospitals.

Indeed, the importance of hospital management in supporting patient safety was also confirmed by the current study in which it had been found to have a positive correlation with the organisational learning dimension. Also, the support of management was found to have a positive correlation with other patient safety culture dimensions. Furthermore, the survey data analysis found a negative correlation between the teamwork within departments and the patient safety problem experiences due to patient handover and transition procedures.

This result reflected that a safe handover not only relied on teamwork between the staff but it also needed a clinical policy in place such as the use of a formally structured handover checklist during hospital handover procedures between health care shifts. This claim was supported by Bost et al. (2010) and Nagpal et al. (2013) in suggesting that handover could be improved by using structured handover protocols. Moreover, the survey found no correlation between different dimensions, including the dimension of communication and openness of health care workers, with non-punitive response to errors; an explanation for this finding could be that there is better communication between health care staff than between staff and health managers. In fact, there is a need for further research to explore the nature of the relationship between different patient safety culture dimensions.

7.3.7 Clinical practice

Another key significant factor revealed by the current study and had a negative impact on patient safety relates to specific clinical practice issues. The analysis of the qualitative data showed that Libyan patients could be at risk and could even lose their lives due to poor clinical practice in the 3 hospitals in the following areas:

7.3.7.1 Infection control

The qualitative data of the current study showed that the 3 Libyan hospitals were suffering from a lack of hygiene. The health care staff had negative perceptions about the way many hospital environments did not comply with basic hygiene requirements. This finding is consistent with the work of Pittet et al. (2008) that indicated that in developing countries the number of patients affected by hospital infections is more than 25 % of all admissions, a figure that may be 20 times higher than in industrialised countries. The finding is also supported by the report of the world experts on HIV, Luc Montagnier and Colizzi (Krosnar, 2003), who reported to the Libyan government that the AIDS outbreak in the Al-Fateh Children's Hospital, in which many children contracted the disease was a result of the poor state of hygiene in the hospital.

In the three hospitals that are the focus of this research, it was also evident that key areas of clinical practice that have an effect on patient safety, such as infection control and disposal of waste, were not given due regard. Such findings are consistent with other studies such as the research of El-Bouri (2009) which highlighted those Libyan patients could be at risk of hospital infection whilst they receive health care. This is because currently, hospitals have a lack of reliable microbiological laboratory services and inadequate infrastructure in the medical laboratories with which to investigate patients

with suspected hospital-acquired infections; a clear example of a lack of patient safety. Similarly, the findings of the current study agreed with the work of Sawalem et al. (2009) which found that neither guidelines nor policies had been adopted for the disposal of medical waste in Libyan hospitals. Such shortcomings can lead to the Libyan hospital environment being more prone to contamination and the spread of infection. It can be noted from the data of the current study, that Libyan hospitals have poor hygienic practice. There is a need for hospital management to use scientific methods for disposal of medical waste and to provide hospital work areas with better equipment and materials. In addition, improved cleaning practices of the hospital work environment need to be established, with effective hygienic measures put in place to avoid the spread of infections in the hospitals.

7.3.7.2 Emergency services

The current study found another important effect on patient safety in hospitals was as a result of poor emergency departments and services. The interview data showed that the emergency services had a critical effect on patient safety and survivability in Libyan hospitals. Health care staff expressed concern over perceived inadequacies in this area, and these were often related to poorly trained staff and a lack of, or poor, organisation. The study found that weak and ineffective emergency department procedures and systems affected the safety of both outpatients and inpatients. For example, the data showed that heavy workloads in Coronary Care Unit staff, to which patients are directly admitted as an emergency, caused by patients with minor health care problems being referred to them, resulted in reduced patient safety levels. Such disorganisation of these critical services could negatively affect patient safety and be life threatening. These findings are supported by the work of Kobusingye et al. (2005) who suggested that the emergency services in low

and middle income countries need good planning and organisation at all levels of national health services, with the allocation of adequate human and financial resources reduce patient disability and mortality.

With regard to the effect of emergency services on patient safety in hospitals, the qualitative data in the current study showed that patient safety was affected negatively by the interference of the family and relatives of certain patients during the emergency process. This result reflects the social and the cultural influences that Libyan people can have on patient safety as lay people sometimes attempt to aid patients, in emergency cases, themselves. This could be justified due to the absence of emergency services, such as an identified hotline emergency number or allocated ambulances under orders, and this has led to lay people taking it upon themselves to aid the patients.

This concern is similar to the findings of Hedayat (2013) that showed that most emergency sections in Libyan hospitals do not match up to the Emergency Department Categorisation Standards. Emergency care offered in areas designated for casualties is often administered by junior residents with little overview of the situation and who are merely referral points for specialised care. It can be noted that the Libyan national health system needs to establish a national countrywide health emergency system with development of the infrastructure of emergency departments in hospitals and the allocation of trained and qualified staff with the specialist skills to deliver urgent health care services whenever and wherever the Libyan people need them.

7.3.7.3 Medication and prescriptions

The qualitative phase of the study also indicated that the current medication and prescription system in the hospitals had a negative impact on patient safety. The data

showed that the current prescriptions are written by hand and that there is no standard form or code that contains clear and complete information about patients and drugs. This poor system has had a bad effect on patient safety. For example, the health care staff reported that they had experience of misunderstanding with regard to drug names and treatment doses, which had led to incorrect medication administration. This result is supported by a study conducted by Alsulami et al. (2013) who undertook a systematic literature review of studies of the incidence and types of medication errors in Middle Eastern countries and to identify the main contributory factors involved. They found that Middle Eastern countries suffered from different medication error incidences and that they needed to improve the skills and knowledge of prescribers in these countries.

Data also showed that patient safety could be affected by the way drugs were dispensed and by the lack of regulation of private pharmacies. It can be noted that the current medication and prescription system in Libya could cause threat to patients and contribute to medical errors. Libyan health policy makers need to change the current medication system and put effective laws and regulations in place to organise the prescribing and dispensing of medications. Also, a national electronic standard prescription form needs to be used by health care organisations and the private sector to avoid and reduce the harm caused by the current medication and prescription system.

The qualitative findings also showed that the Libyan hospitals had experienced severe shortages of drugs, particularly during the first months of the conflict. The reason for this was that during Libyan revolution the central Libyan government in Tripoli had restricted medical supplies to north eastern cities where hospitals in this study are located. However, following the military conflict, these shortages have been compensated for as the Ministry

of Health started to supply further medical materials and drugs to the hospitals in these cities.

7.3.7.4 Clinical investigation

The interview study results also showed that many health care workers were concerned about patient safety because of the unavailability of certain clinical investigations in the hospitals. The health care staff reported that their patients had encountered a delay in their medical care as a result of blood samples being sent away to other places for clinical investigation and that it may have taken a long time for the final results report to get back. This finding can be explained by the fact that laboratory departments in hospitals were lacking in medical equipment or were not working properly.

From the sample, it can be seen that certain health care technicians expressed concern about patient safety over the issue of reliability of medical equipment and the validity of their results due to irregular standard measures for the medical instruments and because many of them were out of date. Such concerns have been raised in a publication by WHO (2009) that highlighted 10 global patient safety factors and noted that at least half of all medical equipment in developing countries is unusable or only partly usable, and that this has resulted in increased risk of harm to patients.

In the findings of this study, it can be seen that a culture with a policy for regular maintenance of medical equipment was missing in the hospitals. This had led to some equipment ceasing to work properly and that had had an effect on the availability of important tests in the hospitals for investigation of patients, and this had led to the delay in diagnosis and treatment. Also, the lack of regular maintenance could have affected the

reliability of medical equipment and this may have led to patient harm because of incorrect diagnosis and treatment. The negative implications of medical investigation upon patient safety were even worse during the period of the days of uprising because of a lack of medical supplies of materials to hospitals. Another important factor, seen from the findings of the current study, could be the effect on patient safety of the poor laboratory infrastructure in the particular Arabic context and the implications for medical investigation.

7.3.8 System and process

A further significant result of the current study, which could lead to a negative impact on patient safety, was the findings related to poor hospital systems and process. The survey and the interview data indicated that there was weak patient safety areas linked with the systems and processes that needed to be developed in order to improve patient safety practice and to reduce safety incidence. These areas were namely:

7.3.8.1 Reporting system

The major finding of the study was that Libyan health care workers in the hospitals under study did not report their errors. The survey data revealed that the culture of reporting of medical errors among Libya staff was very weak with an average of only 30% of participants rating this positively in the survey. This finding could reflect negative perspectives on the managerial and social environment in the context of the hospitals, where error is viewed as personal failure rather than a fault of the system (Khon et al., 2000 & Leape, 2009). In addition, it was identified from the qualitative data that the main

factor that led to under-reporting in the Libyan hospitals was that there was no system in place for the reporting of errors. Another reason identified from the interviewees was that the staff did not report their errors due to the lack of feedback from their managers. The survey data showed that only 37.74 % of the staff were positive about the feedback of their managers to patient safety issues and it was considered that staff notes related to patient safety were only given minor consideration and this resulted in little change actually taking place in their work place areas.

For that reason, in the qualitative study, health care workers mentioned that they had not been reporting their errors because they were frustrated by the limited feedback and the poor response of the hospital managers to their requirements and reports. The lack of reporting of errors in the 3 hospitals could lead to more patient safety errors and could prevent the health care staff from learning from their experience and developing their medical practice. This explanation is supported by the conclusions of Clark et al. (2012) who conducted a study that examined the effect of adverse incidences on learning systems for improving patient safety. Their study reviewed a total of 2,506 patient safety incidence reports that had been made over five years and it showed that the adoption of a learning approach in health organisations had contributed to a decline in patient related errors.

The reason behind the poor reporting of errors in the 3 hospitals could be because the current Libyan health care system has no independent national reporting error system in place to deal with the staff reports with confidentiality and an active feedback response, elements that could be important for encouraging health care workers to report their errors to independent departments more readily than their managers. This point of view is supported by the work of Barach and Small (2000) who conducted a literature review on

reporting systems and conducted interviews with directors of reporting systems. They identified numerous reasons that deterred the reporting of errors, such as the lack of confidentiality and privacy of the database, a lack of trust, scepticism among staff, and a fear of punishment. Error reporting systems should be considered by the Libyan health managers as one of the health requirements that could improve patient safety and medical practice in hospitals.

7.3.8.2 Clinical guidelines

The main significant influence of systems and process on patient safety shown by the current study was as a result of the lack of application of clinical policies and the problem of variations in clinical practice. The qualitative data revealed that the absence of policy applied to handover procedures across hospital departments and resulted in poorer patient safety. The interview study found that hospital departments did not comply with such policies during their handover procedures. It showed that handover procedures were carried out in an informal manner, were inconsistent, and they did not use standardised documentation.

According to Bost et al. (2010), such poorly organised procedures and the absence of formal policy could lead to the loss of important medical information related to patients and result in ineffective communication and coordination between medical staff and could reduce teamwork between the departments of hospitals. These results are compatible with the observational study of Nagpal et al. (2013) that sought improvement in postoperative handover practice in a UK hospital. Their findings showed that better quality teamwork and communication led to a significant improvement in the quality of handover and, thus,

they provided evidence of the importance of utilising an information protocol so that adverse events could be avoided during all the procedures related to handover.

Furthermore, the interview study found that there was a lack of application of guidelines in hospital departments. The data showed that not all hospital departments followed clinical protocol in their practice. The qualitative results revealed that variations in the application of clinical protocol in departments were dependent on the commitment of heads of departments to the matter. This result matches the research findings of Williams and Irvine (2009) who conducted focus group discussions in the NHS in the UK with clinical supervisors and concluded that it was rare for a nurse operating in that role to be given appropriate guidelines to help them fulfil their duties.

Such results revealed that Libyan patients could be at risk due to them receiving poor diagnostic and treatment services. This result is confirmed by Wilson et al. (2012) who conducted a retrospective study that reviewed medical records of patients in eight countries from the Eastern Mediterranean and African Regions and that found around 34% of the adverse events had occurred because of errors in medical treatment. Most events were thought to be due to a failure of clinical staff to follow appropriate protocols or policies.

These results revealed the necessity for the Libyan hospitals to adopt clinical guidelines and introduce evidence based practice approach for the staff in their departments to provide patients with the same standards of quality of health care and to avoid the errors that result from medical malpractice. Scott and McSherry (2008) critically reviewed and synthesised literature that had an association with evidence-based nursing, with their in-

depth study concluding that nurses needed to be more informed about evidence-based processes and engagement with them in everyday clinical practice.

7.3.8.3 Referral system

Another negative consequence on patient safety, shown by the qualitative data, was as a result of poor organisational systems. Health care workers revealed that there was a concern over patient safety in relation to the current ineffective referral system of patients to the hospitals. Health care staff reported that many patients with minor health care problems came to the hospitals without referral letters. This ineffective referral system had a negative influence upon inpatients by increasing the workload on the hospital staff and increasing the pressure on them. This situation disturbed and interrupted staff from focussing on the health care of hospital inpatients.

Such findings could be explained by the fact patients may go directly to hospitals rather than health centres because of the inactive role of the primary health care system in Libya and its poor performance and equipment. This evidence is consistent with the findings of a survey conducted by Gabor (New Libya Journal, 2013) which assessed the quality of a large number of primary care centres (1402) and noted that a large proportion of the centres for primary health care were only partially operational and that this was having a negative effect upon primary health service delivery within the country. This implication for patient safety can be addressed by a more active role for health centres through preparing them to address all due requirements and ensuring adequate staffing levels so as to reduce the health care demands on hospital.

7.3.9 Political situation

A significant finding of the qualitative data of the current study was the effect of the political situation on the 3 hospitals. The main influences that the political circumstances in Libya had upon patient safety, as shown in the findings, are outlined in the following sections.

7.3.9.1 Revolution

This study showed that patient safety has been dramatically affected by the uprising that happened in Libya in February 2011. An implication of the uprising was disruption of oil supplies, which affected the supplies of water and electricity to the 3 hospitals during the revolution and which, inevitably, had an impact on patient safety. The Libyan health system was clearly not prepared to respond effectively to such a major disruption; it failed to cope with these problems and patients suffered as a result. Furthermore, the work of Mindrescu and Kerry (2013) found that post-conflict assessment of the health system was not executed quickly enough because the Libyan authorities did not have the capability to conduct such an assessment and international organizations did not have the mandate.

In addition, the qualitative data showed another significant implication of the revolution on patient safety was the lack of security and safety of staff in their places of work. The interview data showed that staff suffered from violent incidences and lawlessness, including military attacks, due to the absence of police and the ineffectiveness of judicial services during the period immediately following the revolution. Consequently, health care workers had to withhold their services and hospitals had to close and so, in certain cities, health care services for patients came to a halt. The security situation in the country and the subsequent spread of weapons throughout the population caused difficulties for

hospital management in the restricting public access, and this caused disruption to both staff and patients. The effects of the Libyan revolution on hospitals have been highlighted by other authors, such as Siebens and Case (2012) who emphasised the huge challenges faced by health care staff in Libyan hospitals, even after the revolution. In fact, the violence on health care staff has continued to escalate recently due to the absence of an adequate police service and the proliferation of weapons among the public.

7.3.10 Education and training

The qualitative results also identified the significant issue of hospitals not paying sufficient attention and focus to training for addressing patient safety issues. In general, the participants conveyed a negative impression in terms of a perceived lack of availability of training programmes and the perception that there was only limited recognition by hospital managers that such training was necessary.

Such findings have also been highlighted by other researchers who noted that the standard of nursing care in Libya is inadequate because of the poor standard of training for nurses and technicians, and this could have a direct effect upon patient safety practices (Mohapatra & Al Shekteria, 2009). This could be explained that hospitals management did not put training programmes in their priorities and resources allocation. Indeed, the WHO (2012) report on patient safety research, and its guide for developing training programmes, indicated that there is a challenge in developing countries due to the lack of attention being paid to training programmes and the enhancement of medical knowledge. Another possible explanation that led the lack of training programmes in Libya could result from the shortage of the staff and the nature of hospital systems that prevent the staff from having a chance for taking training programmes.

As well as training on specific issues relating to patient safety, a number of health care workers expressed their concern about the quality of professional qualifications amongst some health care groups and surmised that sub-standard or indeed, no qualifications had a direct impact on patient safety. The data also showed another negative effect caused by the hospital management was the fact staff were not allocated jobs according to their qualifications, which resulted in patients receiving unsafe health care. This has significance for patient safety.

This negative finding and concern about the current health care practice in Libya was highlighted by authors such as (Benamer,2007; Elhamel , 2007 & El Oakley et al., 2013) and which highlighted that there were no professional, independent bodies for the granting or revoking of licenses, based upon international standards, for doctors and nurses to practice. As such, the context for patient safety in Libya is one within which an absence of a transparent, objective, robust mechanism for the processing of licenses may mean that the credentials and credibility of the doctors and nurses practising in the country go unchecked. This situation reflects the view of Barakat, (2012) and Hamroush (2012) who highlighted the degree to which there was corruption in the Libyan health care system. They concluded that administrative corruption was one of the main challenges facing the Libyan health care system.

Also, this finding suggests the likely role of social and cultural factors in the Libyan community, particularly in the east of Libya, where the study was conducted, where tribal relationships had a strong effect. Tribal loyalties could lead to relatives and friends of health managers being allocated health care staff roles without appropriate qualifications for work in hospitals, particularly in the absence of effective supervision and accountability within the health care system. The following section will focus on ways to

enhance patient safety practice in hospitals, in addressing the final research question of the current study.

7.4 Research question 3: How do Libyan health care workers think they can improve patient safety culture practice in Libyan hospitals?

It was noted from the results of the survey and the interviews that the health care workers perceived that patient safety can be improved by focussing on three key priorities. Firstly, it was perceived that the support of the hospital management, with a commitment to patient safety issues in hospital policies and in the allocation of resources, was an essential component to improve patient safety in Libyan hospitals. Also, the study results showed that the perceptions of healthcare workers were that patient safety culture could be improved in the three hospitals if the management shifted the old culture towards one in which a positive approach to patient safety culture was central to their actions.

The importance of the acceptance of a positive patient safety culture at a high level in health care organisations, in influencing the entire work environment and all levels of staff has also been noted in the literature (Reason 1998; Clarke 1999; Nieva & Sorra, 2003). As such, it was felt that it was necessary to move from a 'blame culture' to a more open, communicative culture that lent itself to a greater willingness to report an error and, thereby, giving the opportunity to learn more from any patient safety incidents. This view was supported by other scholars (Carroll & Edmondson, 2002; McSherry, 2004; Kennedy, 2006; Jha, 2008 & Leape, 2009).

Indeed, following further regression analysis of the survey data on the dimension of the support of hospital management, it could be predicted that such management support for patient safety could improve patient safety culture practice in the 3 hospitals. Furthermore,

the correlation test showed there was a positive correlation between management support and other patient safety culture dimensions.

Health care workers had the perception that active feedback from hospital management, following the reporting of a medical error, that informed staff of effective, responsive action to their reporting of a patient safety incident, would encourage the staff to report more regularly. In addition, it was perceived that good quality feedback would help bring about improvement to staff performance and, thereby, help reduce the number of patient safety incidents. This view was supported by (Lundstrom et al. ,2002; WHO, 2005 & Benn et al., 2009) which all identified the importance to patient safety of an effective feedback mechanism following the reporting of an error.

The second key area noted from the perceptions of the participants that could be focussed on to enhance the approach towards patient safety, was the improvement of the emergency departments at the hospitals, which seemed to be considered an urgent issue requiring attention. It was noted from the healthcare workers that there was a need for staff in emergency departments to be better trained in working in a coordinated manner with an effective patient referral system between outpatient departments and other hospital departments to provide proper medical intervention. The health care workers also perceived that patient safety would be better if the national health care system developed national emergency services across the country, with the allocation of sufficient resources for ambulance services, which were considered to be one of the main weak areas that threaten patient safety in Libya.

A third area of concern to health care workers was the perception that many current health care staff are not fully qualified. Many of the participants thought that there was a need to tighten regulation to improve health care practice by ensuring that all professional

specialists were suitably qualified, with more monitoring of standards so that professional licenses were up to date, and that workloads were distributed according to qualifications and experience. McSherry (2005) has already addressed the importance to hospitals of adopting forms of clinical governance that improve medical practice in health care organisations; this perspective was shared by the participants in this study. It was also mentioned by a number of participants that hospitals ought to adopt clinical protocols, applicable to all hospital departments, to ensure the same high level of quality of health care service delivery was achieved across all Libyan health services, both public and private.

Furthermore, many health care workers perceived that patient safety could be improved by establishing suitably resourced training programmes to improve the level of skills amongst staff. The development of the previous 3 key patient safety areas could have a significant impact on patient safety practice for the short term. However there are other patient safety practises and measures that need to be improved to facilitate a positive patient safety culture in Libya hospitals in the long term. These areas and measures will be addressed in the final chapter and which provides conclusions and recommendations.

Chapter 8: Conclusion and recommendations

8.1 Introduction:

This chapter presents the major research conclusion and recommendations of the current study. They were drawn from the main findings of the two studies that form the basis of this thesis. It also considers the main limitations of the current study and their implications. Furthermore, it gives a number of recommendations that may have implications for the development of both policy and practice for the improvement of patient safety in Libyan hospitals. Moreover, suggestions are made for certain aspects of patient safety in Libya that need to be considered for future research.

8.2 Conclusion

Many patient safety researchers agree that the assessment of the patient safety culture of health care professionals is an important diagnostic tool that can be used as a first step in improving and increasing the awareness of patient safety practice in health care organisations (Kohn et al., 2000; Nieva & Sorra, 2003). Consequently, the aim of the study was to assess the perception of health care workers towards the current patient safety culture in Libya. The conclusion and recommendations are provided as a means of addressing the aim of the study and answering its research questions.

This current study provided new knowledge adding to the existing of body of knowledge about the assessment of patient safety culture in hospitals and, more particularly, shed light on the patient safety culture in Libyan hospitals and managed to uncover issues and matters that have a bearing on patient safety in a Libyan context. These were mainly related to the effect of the Libyan social and cultural context upon the emergency services

of the hospitals, and their referral systems, as well as the effect upon hospital management decisions. Further new knowledge was gleaned about the absence of error reporting systems and clinical governance policies in the hospitals. Furthermore, this research provided new evidence regarding the effect that health care worker qualifications, medication and prescription systems, medical emergency services, and the reliability of hospital investigations had upon patient safety. Moreover, it also provided additional knowledge in regard to the effect that the military conflict and the changing political system had upon the hospitals and their patient safety.

It is hoped that this research makes a valuable contribution to knowledge of the current state of patient safety culture in Libya, in its exploration of the main factors and issues that threaten patients in three different hospitals. It offers new knowledge and evidence for Libyan health policy makers; and as such, the findings and recommendations of the study could prove to be helpful in reviewing and improving the patient safety situation across the country. These insights could be transferable to other Arabic countries that have health care systems in similar social and cultural contexts and could, thereby, encourage researchers and decision makers to pay more attention to the assessment of patient safety in their health care organisations.

The findings of this study could be very relevant to other developing countries in respect of the challenges faced for the management of health care systems in unstable political situations. The potential for military conflict in developing countries has direct implications for hospitals and patients with the necessity for putting preventive measures in place to reduce patient safety risk. In addition, the findings of this research could be considered and used as a benchmark to be compared with other countries across the world.

The current study concluded that the overall perception of patient safety culture amongst health care workers in the 3 hospitals was negative. The study indicated that the 12 dimensions of patient safety culture measured in the research were weak and that they needed to be improved. Furthermore, the study identified significant differences between the 3 hospitals and their staff and departments with regard to patient safety culture dimensions. It is evident that there were different factors and aspects that led to poor patient safety culture in the 3 hospitals. Importantly, the study revealed that there was a lack of support or commitment of the management of the hospitals in the addressing patient safety issues; this was considered by the health care workers as one of the main reasons for poor patient safety practice. The findings showed that patient safety issues were not a policy priority for the agenda of the management of the 3 hospitals.

The current study also noted that patients in the 3 hospitals could be under threat of medical error due to the lack of error reporting. It was demonstrated that the absence of a positive safety culture in the work environment of the three hospitals had discouraged health care staff from being open and honest. A work environment of blame and punishment for error, and the socio-cultural background implications of the Libyan context, prevented staff from reporting their errors and, thereby, prevented the open discussion of patient safety issues in the work place. As such, valuable learning opportunities for enhancing the medical practice of staff and for reducing the reoccurrence of medical error, were missed.

Furthermore, the study found that patient safety in the 3 hospitals was below an acceptable level according to the perceptions of the health care staff. It was noted that there was no effective patient safety system in any of the 3 hospitals to deal with patient safety issues, and there were no proactive patient safety measures in place to reduce the level of risk to patients.

Moreover, the study concluded that the safety of patients in the 3 hospitals could be severely affected by the poor standards of the laboratory services, in terms of the lack of validity and reliability of the results of clinical investigations. Also, patient safety could be affected negatively by the laboratory services due to certain investigations being unavailable, despite their importance for effective patient diagnosis and treatment.

In addition, the study found that a shortage in the number of health care workers in some medical specialities in all the 3 hospitals, and the poor distribution of health care workers between their various work areas, could affect patient safety and reduce the availability of essential, skilled health care workers when needed.

Ineffective emergency services at the 3 hospitals were a further key factor that had a negative influence on patient safety. It was shown that patient safety was in a very precarious situation as the medical emergency departments in the 3 hospitals were suffering from poor medical infrastructure and an extreme lack of trained medical teams and ambulance services.

The dimensions of organisational learning and continuous improvement and hospital management support for patient safety were significant in predicting patient safety culture in the three hospitals. Also, the dimension of hospital management support for patient safety issues revealed a positive correlation with all other dimensions. A lack of appropriate qualifications amongst health care workers, working in the 3 hospitals, could represent another source of threat to patient safety, particularly with the lack of clinical accountability and the absence of effective regulations for monitoring and supervising clinical practice and the licensing of health care staff. Staff could not provide patients with safe and good quality health care as the 3 hospitals suffered from a lack of adequate training programmes to improve the clinical skill levels and performance of the staff.

Ineffective communication between health care staff, and poor teamwork and cooperation between departments in the 3 hospitals, had the potential to lead to poor patient safety experiences for the patients. It was found the personal issues and the staff relationship had an influence on the degree of teamwork practice between the staff and the level of cooperation between hospitals' departments. Furthermore, the study leads to the conclusion that patients in the 3 hospitals were at risk as there was a lack of an effective application of clinical protocol across hospitals departments; the variations in health care practice and clinical skills among the staff has the potential of jeopardising the patient safety and standards of quality of health care for patients. There is clearly a major concern about patient safety in the 3 hospitals as result of the lack of hospital infection control measures and poor work environment condition in various work areas. The proper implementation of medical wastage disposal policies were missing and not applied in the 3 hospitals.

Patients could encounter medication errors due to the poor medical prescription system in the 3 hospitals, particularly in the absence of effective laws and regulations to organise the process for the dispensing of the medicines to patients, both for the hospital pharmacies and for private pharmacies within the country.

Patient safety was affected significantly by changes to the political context in the country with the fall of the Gadaffi regime. It was shown that patient safety had been affected negatively by the shortage of medical staff, particularly of the departure of foreign staff due to the unstable security situation in Libya. Further serious implications for patient safety that resulted as a consequence of the uprising were the severe shortages in the supply of drugs and medical materials to the 3 hospitals due to disruption to supply chains.

The study indicated that lack of security and the absence of effective police services had allowed weapons to become widespread amongst the public and there was an increased number of violent incidents against the medical staff; this poor security situation in the country had led to the closure of some hospitals in Libya, so certain services were being withheld from patients in need. Interestingly, the study found the noted that perceptions of the health care workers were recorded as being much more negative with regard to patient safety following the change of political regime. This can be partly explained by people feeling freer to express their opinions openly, without fear, once the old regime had been removed.

Overall, the research conducted for this thesis leads to the worrying conclusion that the current state of patient safety culture in Libyan hospitals is weak and there is a necessity for improvement to the safety practice and for promotion of this important issue amongst those health care workers and health managers working at the frontline of health care delivery. Thus a number of recommendations are proposed that seek to contribute to improved patient safety culture in Libyan hospitals.

8.3 Recommendations:

Based on the research results, a framework emerged that focused on actions at 3 key levels as the following:

1. **The policy level:** the concern of the government.
2. **The organisational level:** the concern of hospital directors.
3. **The clinical level:** the concern of health care workers.

A number of recommendations can be made with implications for the development of policy and practice. There were a number of issues that were considered important for Libyan authorities to consider during the development of policy for improving patient

safety culture in Libyan hospitals. For each of these levels, there are cross themes that will need be addressed (see figure 8.1).

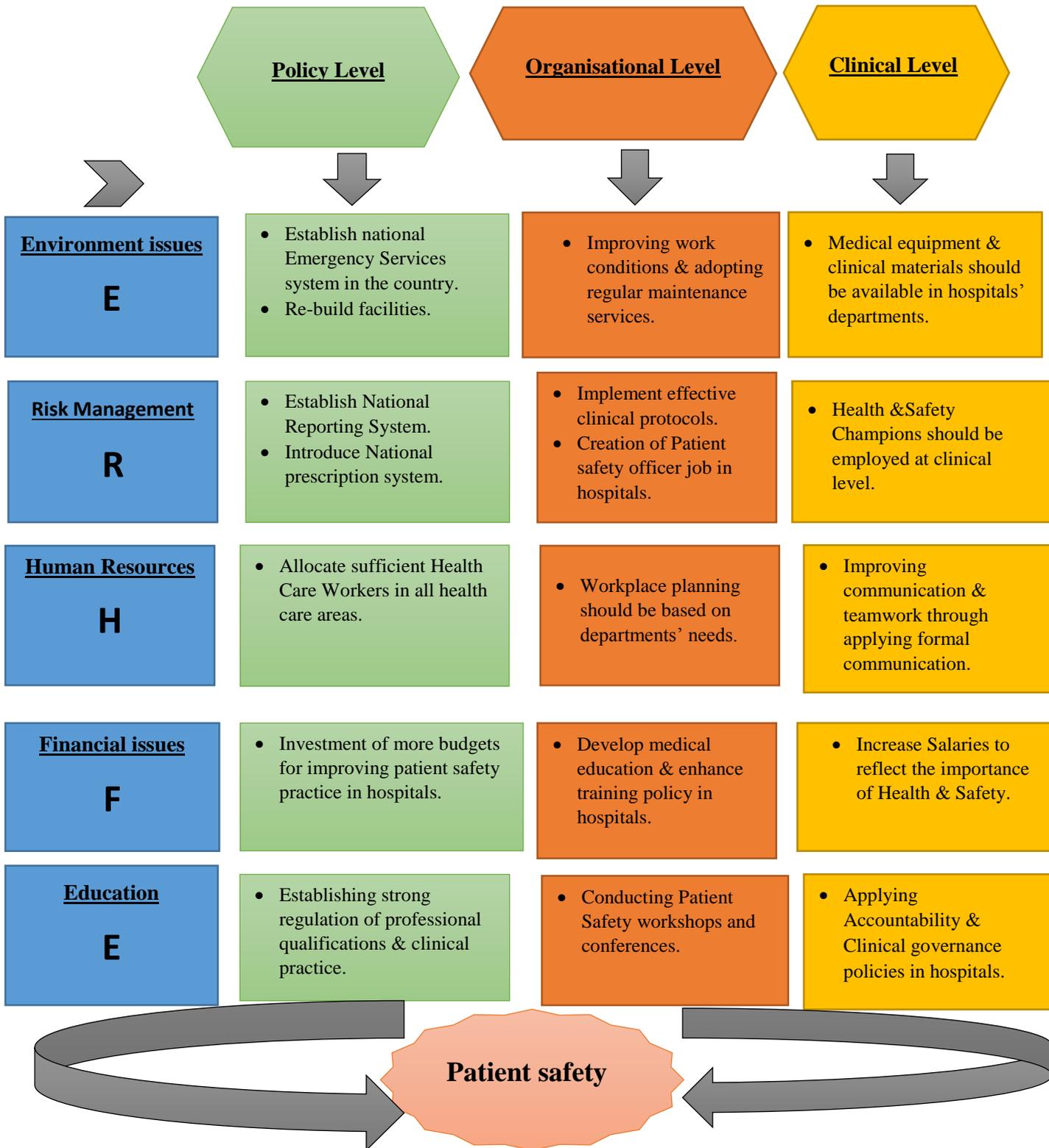


Figure (8.1): ERHFE Patient Safety Framework

A. Environmental issues:

- Establish a national health emergency service, supported by the allocation of suitably trained human resources and resourced ambulances with the establishment of a national phone line to call in the case of medical emergency.(Policy level)
- Improve and prepare the emergency departments in hospitals with trained staff and sufficient equipment and establish an effective referral system between emergency departments and other hospital departments based on medical priority (triage). (Organisational level)
- Improve the working conditions for health care staff of hospitals by adopting regular maintenance of hospital facilities and medical equipment to keep services available for patients and enable health care staff to carry out their work effectively. (Organisational level)
- Employ an appointment system in hospitals for the admission of patients and medical follow-up appointments to organise hospital work and improve the quality of health care for patients. Also, visiting times should be restricted to avoid excessive disturbance of staff and patients. (Organisational level)
- Seek to reduce security risks in the hospitals through coordination with the Ministry of Interior to take its responsibility for the protection of hospitals, and to work in collaboration with the Ministry of Culture and Media to launch an awareness campaign for the community to reduce the number of violent attacks to hospital staff. (Policy & Organisational levels)

B. Risk management:

- Put patient safety as a centrally important issue in their policies and decisions. In other words, the Ministry should create a patient safety office at the national level and create patient safety officer positions in the administrative structure of Libyan hospitals, with the effective enforcement of laws and regulations to ensure patient safety practice. Establish patient safety systems in hospitals and make patient safety culture an integral part in all hospital systems. (Policy & Organisational level)
- Introduce a national prescription system using a standard computerised medical prescription form to be adopted by all hospitals to reduce the number of pharmaceutical errors. Also, regulations on drugs prescriptions should be put in place that prohibit the dispensing of drugs in hospitals and private pharmacies without authorisation. (Policy & Organisational level)
- Create a National Reporting System Office at the national level and the opening of different offices within the Libyan health service to encourage a culture of reporting of adverse events in hospitals and analysis of these medical errors, along with the provision of regular feedback about these errors to prevent them from recurring. Ensure active and quick responses to error reporting and feedback to improve patient safety practice. (Policy& Organisational level)
- Establish a system for reporting error events in hospitals and embrace a non-punitive and blame-free culture in the hospital work environment to encourage staff to report their adverse events. (Organisational level)
- Create national health care standards for national health care services to be adopted by all hospitals and health care professionals to assure that patients

receive a safe and consistent level of quality of health care. (Policy & Organisational level)

- Implement more effective clinical protocols in all hospital departments to ensure that health care professionals follow clinical guidelines that provide health care services with high clinical standards for all patients, whilst avoiding inconsistency across health care services and malpractice. For example, a national health care quality agency could be established which puts national health care standards, policies and medical codes in place for the entire national health care system, and which monitors and evaluates the compliance of hospitals with these regulations. (Policy, Organisational & Clinical level)
- Establish policies for accountability and supervision in hospitals for monitoring the performance of health care staff and for identifying any irresponsible behaviour by health care staff that could have an effect on patient safety. Also, encourage organisational learning and governance and clinical policies in hospital work environments within and across hospitals to develop clinical practice. (Organisational & Clinical level)
- Implement effective hospital infection control measures enhanced clinical hygienic practice and proper waste disposal systems with suitable quality assurance monitoring systems to ensure compliance of hospital staff and maintenance of a high standard of hospital cleanliness. Also, the organisation of annual infection control campaigns in hospitals and production of signs and materials would help increase staff awareness of these issues. (Clinical Level & Organisational level)

C. Human resources.

- Allocate sufficient health care workers in hospital departments and ensure a balanced distribution of health care staff in work areas based on the hospital department requirements and upon the qualification, skills and experiences of the health care workers. (Policy & Organisational level)
- Establish national criteria and conditions for appointment for the role of director of hospitals requiring proper qualifications and managerial skills that meet the requirements for a good quality of leader. (Policy & Organisational level)
- Adopt a teamwork approach in hospital work environments through better distribution of authority and delegation of administrative tasks within hospital departments, and the operation of hospital management boards that involve all heads of departments to share responsibility for working closely and effectively in taking informed decisions. (Organisational level)
- Actively encourage Heads of departments and their medical staff to implement a formal protocol and use checklists to improve communication and teamwork during the process of hospital handover between medical shifts, and assure that they provide safe health care for the patients and reduce the possibility of medical errors in their clinical practices. (Organisational & Clinical level)

D. Financial issues.

- Allocate sufficient financial resources from the Ministry of Health budget to support training programmes, workshops and conferences for health care workers to develop their clinical practice. (Policy & Organisational level)

- Enhance the management and resourcing of health care centres and prepare them with sufficient human resources and medical equipment and establish an effective referral system between the primary and secondary health care levels to reduce the workload upon hospitals. This could be done through the establishment of a GP system in each catchment area with the necessity for patients to register to receive health care, as in the NHS in the UK. (Policy & Organisational level)
- Review the salary of health care staff in the public sector as improved salaries will aid in the retention of staff. Also, tighter regulations should prohibit acceptance of waged roles in the private sector for times when staff are expected to be in attendance in their public sector duties. (Policy level)
- Use reward policies for good patient safety practice to encourage health care workers to adopt patient safety practice in their behaviour and to clearly reflect a hospital management commitment towards patient safety in the work environment by putting patient safety signs and materials in all hospital departments.(Organisational level)

E. Education.

- Develop the quality of education in nursing schools and medical schools with the inclusion of patient safety as a topic in their curricula in order to increase the awareness of the importance of the patient safety issue in medical practice amongst nursing and medical students. Also, conduct patient safety culture education programmes for those already working as health care staff in Libyan hospitals to increase their level of awareness. (Policy & Organisational level)

- Establish a robust mechanism, with the imposition of strong regulations, for requirements for the process of recruitment of staff to hospitals and the organising of monitoring systems for the licensing of medical practice of health care professionals. This can be achieved through the creation of a National General Medical Committee for recognition of staff qualifications prior to commencing clinical practice, as in the UK. (Policy level)
- Enhance the training policy for the health care staff in hospitals to improve clinical skills and clinical staff performance and increase the level of awareness of health care workers of patient safety culture through the conducting of training and educational programmes, such as workshops, seminars and conferences on patient safety. (Policy& Organisational level)

8.4 Research limitations:

Although the current study deployed mixed methods to assure the reliability and validity of the findings, a number of matters were encountered during the research process and data collection procedure which need to be acknowledged when considering the findings. The researcher acknowledges that the study included a small sample of hospitals when compared with the number of public hospitals in the country. It involved 3 hospitals that were all located in the northeast of Libya and so the findings may not reflect the reality of the patient safety situation in other hospitals. Thus it is particularly relevant to those in the capital, where access to supplies and staff are easier than those that were under study in this research. However, all hospitals in the country share similar hospital administrative systems and their medical health care staff are from the same culture, education and social background.

The political changes and the implication of the revolution impacted on the timescale of the study and the data collection methods of Phase 2 of the study. This meant that the study changed from the conducting of face to face interviews to an email interview as the researcher was not able travel to Libya due to the security situation at that time. The study completed 27 interviews via email to answer the interview questions before the security situation improved. The implication for the study was that the data that emerged from the email approach lacked the depth and richness that was anticipated. For that reason, after the military conflict ended, the researcher conducted 15 face-to-face from those 27 to clarify certain responses and to get further information.

One of the Hospitals B which was under study was poorly maintained, so the need for maintenance led to all hospital departments being moved to temporary accommodation in polyclinics; and this may have impacted on the results. Another limitation was the potential for bias related with the sampling frame because at the time of the study, manpower reorganisation in public services was under way.

Another challenge faced in the current 2 phased study design was that it adopted different contrasting philosophical theories with different overview positions; one adopted positivism which sought to simplify the phenomena and eliminate the influence of the researcher on them through the use of certain frequency variables to measure phenomena. Meanwhile, the other approach, i.e. interpretivism, sought to explore the people's views and experiences through involving the researcher closely to understand phenomena (Johnson & Onwuegbuzie, 2004). This made it difficult to integrate and interpret the findings of both the quantitative and qualitative research designs together, especially given the change in the perceptions of the participants after the revolution. It is considered that

within a Libyan context that it was helpful to start with a questionnaire so that the researcher could get access to the perception of the staff. However, it was necessary to conduct a further inquiry with a qualitative method (interview) to reveal more information to help get a deeper understanding of the entire patient safety situation. Using both of these approaches would maximise the validity of the research findings as they were complementary to each other.

However, the use of the interview technique for collecting data proved to be an unfamiliar and uncomfortable method with some participants, particularly certain females, who may have felt embarrassed at sitting and talking with a man who was a stranger. An interviewer of the same gender as the participant may have helped in the collection of data and this is something that should be considered in future qualitative research that takes place within the Arabic culture. In general, social and cultural factors in a Libyan context could lead to survey methods being more commonly used than face-to-face interviewing. Indeed, most research undertaken in Libya has used a type of survey method (Ajaj & Pansalovic, 2005; El-Bouri, 2009; Mohapatra & Al Shekteria, 2009 & Sawalem et al., 2009).

Although using mixed methods in this study had other shortcomings, such as the heavy consumption of resources in terms of effort and time. However, the study required this level of effort since it was research towards a PhD and the researcher was fortunate to receive a scholarship which supported the intensive level of the endeavour. In addition, the study was divided into 2 phases that were conducted separately to avoid any potential difficulties that could have arisen from deploying 2 methods simultaneously in one study.

The benefit of conducting a mixed methods study was evident in terms of the data that were generated from each study. Although not anticipated at the outset of the study, with hindsight, it is evident that the qualitative study offered revelations that made the most significant contribution to knowledge. Although this could in part be ascribed to the

change in the political situation in Libya at the time of the qualitative work, it is not wholly attributable to this change. The qualitative approach is relatively unfamiliar in Libya and indeed other Arabic countries, and the depth of exploration that it facilitated provided new insight into the experiences and thoughts of individuals that could not and have not been revealed through previous quantitative work.

Some demographic and social information, such as gender, marital status, type of qualification and the nationality of the staff of health care workers, was not included in the survey; such information would have been useful in helping to understand their influence upon health care workers' perceptions in the Libyan context. For example, the nationality of staff variable could have help in the examination of the differences in perceptions between foreign and Libyan staff with regard to patient safety practice. In fact, the qualitative results did provide some additional insight and suggested that foreign staff who were working in the 3 hospitals were more skilled and committed to their work than the Libyan staff.

It would have been helpful to collect data on the level of qualifications of the staff as this may influenced the perceptions of health care workers in relation to patient safety culture practice. Indeed, the study findings suggested that qualifications was an important issue impacting upon patient safety practice as there is no stringent regulation or monitoring of professional qualifications, and the current study found that some staff were working without appropriate skills and qualifications. In addition, a marital status variable could have helped in the examination of the different impact that marital status had upon patient safety culture; the study findings suggested that married females were less committed to their work due to their primary social role in Libyan family duties, however this could not be verified without holding a record of marital status for all participants.

In spite of these limitations however, the study investigated the perception of patient safety culture amongst health care workers and identified important factors which could affect patient safety practice in Libya.

8.5 Implications for Future Research:

It was noticed from this study that there are other important research areas that need to be considered for future research. The problem of medical errors in Libyan hospitals clearly needs to be studied further. One possible approach could be to conduct a large scale intervention study to improve upon areas of weakness for dimensions of patient safety culture in Libyan hospitals and to increase the awareness of the health care staff. Further research is also needed to study the correlation and the relation between patient safety dimensions. In addition, as this study only looked into patient safety culture of three public sector Libyan hospitals, examination of the perception of health care workers towards patient safety culture dimensions is needed for other settings, such as primary health care organisations and private hospitals.

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Appendix 1: The Questionnaire of the study



HOSPITAL SURVEY ON PATIENT SAFETY CULTURE

INSTRUCTIONS

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

- An *“event”* is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.
- *“Patient safety”* is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.

SECTION A: Your Work Area/Unit

In this survey, think of your “unit” as the work area, department, or clinical area of the hospital where you spend *most of your work time* or provide *most of your clinical services*.

What is your primary work area or unit in this hospital? Mark **ONE** answer by filling in the circle.

- a. Many different hospital units/No specific unit
 - b. Medicine (nonsurgical)
 - c. Surgery
 - d. Obstetrics
 - e. Pediatrics
 - f. Emergency department
 - g. Intensive care unit (any type)
 - h. Psychiatry/mental health
 - i. Rehabilitation
 - j. Pharmacy
 - k. Laboratory
 - l. Radiology
 - m. Anesthesiology
 - n. Other, please specify:
-

Please indicate your agreement or disagreement with the following statements about your work area/unit. Mark your answer by filling in the circle.

Think about your hospital work area/unit...	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	▼	▼	▼	▼	▼
1. People support one another in this unit	①	②	③	④	⑤
2. We have enough staff to handle the workload	①	②	③	④	⑤
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	①	②	③	④	⑤
4. In this unit, people treat each other with respect	①	②	③	④	⑤
5. Staff in this unit work longer hours than is best for patient care....	①	②	③	④	⑤
6. We are actively doing things to improve patient safety	①	②	③	④	⑤
7. We use more agency/temporary staff than is best for patient care	①	②	③	④	⑤
8. Staff feel like their mistakes are held against them	①	②	③	④	⑤
9. Mistakes have led to positive changes here	①	②	③	④	⑤
10. It is just by chance that more serious mistakes don't happen around here	①	②	③	④	⑤
11. When one area in this unit gets really busy, others help out	①	②	③	④	⑤
12. When an event is reported, it feels like the person is being written up, not the problem.....	①	②	③	④	⑤

SECTION A: Your Work Area/Unit (continued)

Think about your hospital work area/unit...	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	▼	▼	▼	▼	▼
13. After we make changes to improve patient safety, we evaluate their effectiveness.....	①	②	③	④	⑤
14. We work in "crisis mode" trying to do too much, too quickly.....	①	②	③	④	⑤
15. Patient safety is never sacrificed to get more work done	①	②	③	④	⑤
16. Staff worry that mistakes they make are kept in their personnel file.....	①	②	③	④	⑤
17. We have patient safety problems in this unit	①	②	③	④	⑤
18. Our procedures and systems are good at preventing errors from happening	①	②	③	④	⑤

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report. Mark your answer by filling in the circle.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
	▼	▼	▼	▼	▼
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.....	①	②	③	④	⑤
2. My supervisor/manager seriously considers staff suggestions for improving patient safety.....	①	②	③	④	⑤
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts.....	①	②	③	④	⑤
4. My supervisor/manager overlooks patient safety problems that happen over and over.....	①	②	③	④	⑤

SECTION C: Communications

How often do the following things happen in your work area/unit? Mark your answer by filling in the circle.

Think about your hospital work area/unit...	Never	Rarely	Sometimes	Most of the time	Always
	▼	▼	▼	▼	▼
1. We are given feedback about changes put into place based on event reports.....	①	②	③	④	⑤
2. Staff will freely speak up if they see something that may negatively affect patient care	①	②	③	④	⑤
3. We are informed about errors that happen in this unit	①	②	③	④	⑤
4. Staff feel free to question the decisions or actions of those with more authority	①	②	③	④	⑤
5. In this unit, we discuss ways to prevent errors from happening again.....	①	②	③	④	⑤
6. Staff are afraid to ask questions when something does not seem right	①	②	③	④	⑤

SECTION D: Frequency of Events Reported

In your hospital work area/unit, when the following mistakes happen, *how often are they reported?*
Mark your answer by filling in the circle.

	Never ▼	Rarely ▼	Some- times ▼	Most of the time ▼	Always ▼
1. When a mistake is made, but is <i>caught and corrected before affecting the patient</i> , how often is this reported?	①	②	③	④	⑤
2. When a mistake is made, but has <i>no potential to harm the patient</i> , how often is this reported?	①	②	③	④	⑤
3. When a mistake is made that <i>could harm the patient</i> , but does not, how often is this reported?	①	②	③	④	⑤

SECTION E: Patient Safety Grade

Please give your work area/unit in this hospital an overall grade on patient safety. Mark ONE answer.

- A Excellent
 B Very Good
 C Acceptable
 D Poor
 E Failing

SECTION F: Your Hospital

Please indicate your agreement or disagreement with the following statements about your hospital.
Mark your answer by filling in the circle.

Think about your hospital...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. Hospital management provides a work climate that promotes patient safety	①	②	③	④	⑤
2. Hospital units do not coordinate well with each other	①	②	③	④	⑤
3. Things "fall between the cracks" when transferring patients from one unit to another	①	②	③	④	⑤
4. There is good cooperation among hospital units that need to work together	①	②	③	④	⑤
5. Important patient care information is often lost during shift changes	①	②	③	④	⑤
6. It is often unpleasant to work with staff from other hospital units ..	①	②	③	④	⑤
7. Problems often occur in the exchange of information across hospital units	①	②	③	④	⑤
8. The actions of hospital management show that patient safety is a top priority	①	②	③	④	⑤
9. Hospital management seems interested in patient safety only after an adverse event happens	①	②	③	④	⑤
10. Hospital units work well together to provide the best care for patients	①	②	③	④	⑤
11. Shift changes are problematic for patients in this hospital	①	②	③	④	⑤

SECTION G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted? Mark ONE answer.

- a. No event reports
 b. 1 to 2 event reports
 c. 3 to 5 event reports
 d. 6 to 10 event reports
 e. 11 to 20 event reports
 f. 21 event reports or more

SECTION H: Background Information

This information will help in the analysis of the survey results. Mark ONE answer by filling in the circle.

1. How long have you worked in this hospital?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more
2. How long have you worked in your current hospital work area/unit?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more
3. Typically, how many hours per week do you work in this hospital?
 - a. Less than 20 hours per week
 - b. 20 to 39 hours per week
 - c. 40 to 59 hours per week
 - d. 60 to 79 hours per week
 - e. 80 to 99 hours per week
 - f. 100 hours per week or more
4. What is your staff position in this hospital? Mark ONE answer that best describes your staff position.
 - a. Registered Nurse
 - b. Physician Assistant/Nurse Practitioner
 - c. LVN/LPN
 - d. Patient Care Assistant/Hospital Aide/Care Partner
 - e. Attending/Staff Physician
 - f. Resident Physician/Physician in Training
 - g. Pharmacist
 - h. Dietician
 - i. Unit Assistant/Clerk/Secretary
 - j. Respiratory Therapist
 - k. Physical, Occupational, or Speech Therapist
 - l. Technician (e.g., EKG, Lab, Radiology)
 - m. Administration/Management
 - n. Other, please specify:
5. In your staff position, do you typically have direct interaction or contact with patients?
 - a. YES, I typically have direct interaction or contact with patients.
 - b. NO, I typically do NOT have direct interaction or contact with patients.
6. How long have you worked in your current specialty or profession?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more

SECTION I: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your hospital.

THANK YOU FOR COMPLETING THIS SURVEY.

Appendix 2 : Consent form Phase 1

**LIVERPOOL JOHN MOORES UNIVERSITY
CONSENT FORM**



Perceptions of the Patient Safety Culture amongst Health Care workers in the Northeast of Libya.

Phase One Study

Mr. Salem .S.S Rages, Faculty of Health & Applied Social Science, Liverpool John Moors University

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and that this will not affect my legal rights.
3. I understand that any personal information collected during the study will be anonymised and remain confidential
4. I agree to take part in the above study

Name of Participant	Date	Signature
Name of Researcher Salem .S. S. Rages	Date	Signature
Name of Person taking consent (if different from researcher)	Date	Signature

Note: When completed 1 copy for participant and 1 copy for researcher

Appendix 4: Participant information sheet

Liverpool John Moores University

Participant's information sheet



Perceptions of the Patient Safety Culture amongst Health Care workers in the Northeast of Libya.

MR. Salem .S.S. Rages, Faculty of Health & Applied Social Science, Liverpool John Moores University.

You are invited to take part in this study which will assess the perception of Health care professionals about patient safety culture and explore factors that affect patient safety practice. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not understandable or if you would like further information. Take time to decide if you want to take part or not.

1. What is the purpose of the study?

The aim of the study is to examine the perception of health care professionals such as, Doctors, Nurses, and Technicians, Pharmacists and Health managers who are working in Libyan hospitals about patient safety culture. Also, the study will identify the factors that affect patient safety practice.

2. Do I have to take part?

You have a right to withdraw consent from study at any stage without giving any excuse.

3. What will happen to me if I take part?

If you are willing to participate in the study, you will be asked in part one of the studies to completed fill a questionnaire which takes about 10 to 15 minutes. A further sample will be selected from participants who completed the questionnaire and they will participate in Interviewing.

Where there are a large number of procedures involved it is recommended that these also be depicted as a flow chart for clarity.

4. Are there any risks / benefits involved?

There are no risks and to taking part in this study. You will not directly benefit from taking part but the findings of the study may help to improve practice on the future.

Will my taking part in the study be kept confidential?

All data will be kept strictly, confidential, and nobody will have access to data except the researcher and supervisors who have only a private password. Data will be stored separate from other information. All personal information obtained from participants will be reserved for a period of five years following completion of the study after which it will then be destroyed by electronic deletion and shredding.

Contact Details of Researcher

I am always happy to clarify any things is not clear or giving more information. Please do not hesitate to contact me on

MR. Salem.S.S.Rages.

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Email: S.S.Rages@2009.ljmu.ac.uk

In the interests of safety for the researcher LJMU ethics committee would advise researchers not to include home addresses or personal telephone numbers (mobile or home) as contact details for participants.

Where questionnaires are to be returned by members of the public as part of the study the ethics committee would advise researchers to consider the use of collection boxes at third party locations.

Note: A copy of the participant information sheet should be retained by the participant with a copy of the signed consent form.

Appendix 5: A letter Invitation



Liverpool John Moores University

Faculty of Health and Applied Social Science

A LETTER OF INVITATION TO TAKE PART IN A STUDY ABOUT PATIENT SAFETY CULTURE IN LIBYAN HOSPITALS.

Dear Participant,

I am writing as a PhD student from the Faculty of Health and Applied Social Science at Liverpool John Moores University in the UK to inform that you have been selected to take part in a research study that follows on from a questionnaire survey which you kindly took part in earlier this year.

This second study will involve me asking you some questions to use to explore the main causes that were behind the identified weakness areas in patient safety culture practice in Libyan hospitals.

We would like you to take part in a face-to-face interview during which you will be asked to provide answers to a series of questions related to the factors that are necessary for patients' safety. The interview will be recorded and it will require 45 to 60 minutes of your time.

Appendix 6: Semi-Interview Guideline and Interview questions



Liverpool John Moores University

Faculty of Health and Applied Social Science

Semi -Structured Interview Guide

The following topics will be explored during the interview:

- Participant understands of patient safety culture.
 - Participant's perception of patient safety in their work area.
 - Participant's perception of areas of weakness relating to patient safety in place of work.
 - Participant's perception of good practice relating to patient safety practice.
 - Suggestions for improving patient safety practice in hospitals.
 - Level of priority given to patient safety in work area.
 - Examples of guidelines or regulations used for patient safety practice in work area.
- N.B.** This is a guide and questions will vary depending on individual responses.

Interview Questions

This interview asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 60 to 90 minutes to complete.

1. What support systems are in place in your hospital to help you deal with patient safety issues?
2. When an error occurs what procedures are followed to manage this in your hospital?
3. In your opinion how does communication between professionals affect patient safety in your hospital?
4. In your experience after an error is reported what feedback do you receive from your

- manager?
5. Can you tell me what level of importance your hospital management put on patient safety and can you give an example to support your answer?
 6. From your observations do you think health care workers are concerned about personal consequences when they report an error in your hospital? Please explain the reasons for your answer?
 7. In your opinion what affect do staffing levels have on patient safety in your hospital?
 8. In your opinion how does the teamwork within your department affect patient safety?
 9. In your opinion how does teamwork between your hospital departments affect patient safety?
 10. In your experience how does your hospital help you learn from your mistakes?
 11. In your experience how does the handover process between shifts affect patient safety in your department?
 12. When a patient is transferred to your department can you tell me how the handover process affects patient safety?
 13. In your opinion what level of importance does your head of department place on patient safety?
 14. How has the current conflict in Libya affected patient safety in your hospitals?

Appendix 7: Ethical Approval of the Phase 1(Quantitative Research)



Dear Salem

Provisional Approval

10/HEA/019 - Salem Rages, PG, To examine the perception of patient safety culture dimensions among health care professionals in Libyan Hospitals

Liverpool John Moores University Research Ethics Committee (REC) has reviewed the above application at its last meeting. The Committee would be content to approve the research project subject to the following provisos:

Confirmation that data collection did not commence prior to the September 2009 start date stated in the application.

- Confirmation of how potential Participants will be identified and recruited.
- How will the questionnaires be returned to the Applicant?
- Please clarify the purpose of the use of identifier codes on the questionnaires.
- Please confirm the data storage and disposal arrangements.
- Please state on the Participant Information Sheet that data collected outside the European Union is exempt from the Data Protection Act.
- Please clarify the arrangements in place with both the Gatekeeper and Ethics Committee in Libya. This information will be forwarded to Dr Dave Harriss who may then raise additional queries, as REC expects compliance with any requirements issued by the Gatekeeper and Ethics Committee

It was noted that this application only covers the first part of the research project

Yours sincerely

PP:

A handwritten signature in black ink, which appears to read "Brian Kerrigan".

Brian Kerrigan

Chair of the LJMU REC

Tel: 0151 231 3110

E-mail: a.f.williams@ljmu.ac.uk

Appendix 8 Ethical approval of the Phase 2 (Qualitative Research)



Ethical Approval

11/HEA/005, Salem Rages, PG, Assessing the perceptions of the Patient Safety Culture among Health Care workers in the Northeast of Libya: a qualitative study (Fiona Irvine)

Liverpool John Moores University Research Ethics Committee (REC) reviewed the above application and following the satisfaction of provisos I am happy to inform you the Committee are now content to give a favourable ethical opinion and recruitment to the study can now commence.

Approval is given on the understanding that:

- any adverse reactions/events which take place during the course of the project will be reported to the Committee immediately;
- any unforeseen ethical issues arising during the course of the project will be reported to the Committee immediately;
- any substantive amendments to the protocol will be reported to the Committee immediately.
- the LJMU logo is used for all documentation relating to participant recruitment and participation eg poster, information sheets, consent forms, questionnaires. The JMU logo can be accessed at www.ljmu.ac.uk/images/jmulogo

For details on how to report adverse events or amendments please refer to the information provided at http://www.ljmu.ac.uk/RGSO/RGSO_Docs/EC8Adverse.pdf

Please note that ethical approval is given for a period of five years from the date granted and therefore the expiry date for this project will be January 2016. An application for extension of approval must be submitted if the project continues after this date.

Yours sincerely

PP:

Mandy Williams

Brian Kerrigan

Chair of the LJMU REC

Tel: 0151 231 3110

E-mail: a.f.williams@ljmu.ac.uk

Appendix 9: Ethical Amendment



10/HEA/019 - To examine the perception of patient safety culture dimensions among health care professionals in Libyan Hospitals

Liverpool John Moores University Research Ethics Committee (REC) has reviewed the amendment to the above project and approved it by Chairs action.

Yours sincerely

**Mandy Williams
Research Support Officer
Liverpool John Moores University
Research Support Office
4th Floor, Kingsway House
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Liverpool L3 2AJ
t: 0151 904 6467
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CC: Supervisor

Appendix 10: Notification Letter to the Ethics committee of LJMU

Notification of change approach to data collection for qualitative study with regard to patient safety culture in Libya

Due to the unrest military conflict in various regions of Libya between rebels and Gaddafi regime, the country has become a very unstable and dangerous context for collection of data.

From the previous ethical application, the intention was to collect qualitative data by face-to-face interview with various health care workers from three hospitals which are located in the Northeast of country. In view of the situation in Libya that would not be possible. The possibility of interviewing by phone was considered but again the telephone services between the UK and Libya is rather temperamental and not reliable.

At a recent supervision meeting this issue was discussed and the possibility of collecting qualitative data by e-mail was discussed. The intention is to e-mail the participants with the following questions:

Dimension	Question
1. Frequency of Reporting	What is the procedure for reporting an error when it happened? Do you have clear measures of patient safety for reporting an error? If not, Why?
2. Overall Perception of Safety	Tell me, how important patient safety issues are in your hospital? Are health care workers and hospital departments perceived for patient safety issues differently? If yes, Why do you think?
3. Managers' Expectations	From your daily contact, do you think your manager supports and pays more attention for patient safety matters? If not, please why?
4. Organisational Learning	How does your hospital help you to learn from your mistakes through being able discuss them openly and freely in your hospital? If not why?
5. Teamwork within Hospital	In your experience, How often do you work at your department in team with others to provide health care for patients? If not, why do you think? H ave you got a patient safety office or officer in your hospital? If not, who is the charge of patient safety matters?
6. Communication Openness	In your opinion, are there any errors are happened to patients as result of poor communication among health care workers? If yes, please

	mentions the reasons?
7. Feedback about error	In your experience, how often do you get a feedback regularly from your managers when you reported your notes on patient safety issues to them? If not why?
8. Non Punitive response	In case of you make an error; do you concern about personal Consequences? If yes, explain?
9. Staffing	Do you have patient safety incidents happened in your hospital as result of an insufficient of number of health care workers? If yes, why do you have this shortcoming?
10. Management support for patient safety	In your experience, does your hospital management supports patient and pays more attention to patient safety issues? If not, explain with given examples if possible?
11. Teamwork across Hospital	From point of your view, have you got patient safety incidents happened in your hospitals as result of poor coordination between hospital departments? If yes, why do you think?
12. Hospital hand over	In your opinion, do you think the transaction and shift procedures are affecting negatively on patient safety in your hospital and, If so why?

Once the participants respond to the questions, the response will be worked at and further questions based on the responses will be emailed back to the respondents for further clarification.

Appendix 11: Data collection permission from Hospital A

Great Socialist People's Libyan Arab Jamahiriya

Secretariat of Health and Environment.

Hospital A.

To whom it may concern

Hospital management certifies that has given a permission to **Mr. Salem Saleh Rages** to conduct his research about Patient Safety Culture.

Best wishes.

Mr. Mohamed Saleh Al Abida.

Medical director of Hospital.

Appendix 12: Data collection permission from Hospital B

Great Socialist People's Libyan Arab Jamahiriya

Secretariat of Health and Environment.

Hospital B

Hospital management has given a permission to **Mr. Salem Saleh Rages** to conduct his research about Patient Safety Culture, and it welcomed to cooperate with him.

Mr. Hashim Salama Alrfadi.

Medical director of Hospital.

Appendix 13: Data collection permission from Hospital C

Great Socialist People's Libyan Arab Jamahiriya

Secretariat of Health and Environment.

Hospital C.

Hospital management has given a permission to **Mr. Salem Saleh Rages** to conduct his research about Patient Safety Culture, and it welcomed to cooperate with him.

Dr. Saad Akoub Abdelrazik.

Medical director of Hospital.

Appendix 14: Qualitative data categorisation

Step (1)

- professional issues
- Communication
- Organisation
- Teamwork
- Staff
- Hospital issues
- Social + Cultural factors
- prescription + Drugs
- Emergency services
- Investigation issues
- Equality + fairness
- Competences + skills
- Equipment + materials
- Administration factors
- feedback + response
- Qualification of HCW
- Education + training
- Revaluation
- Reporting errors
- Handover
- Political situation

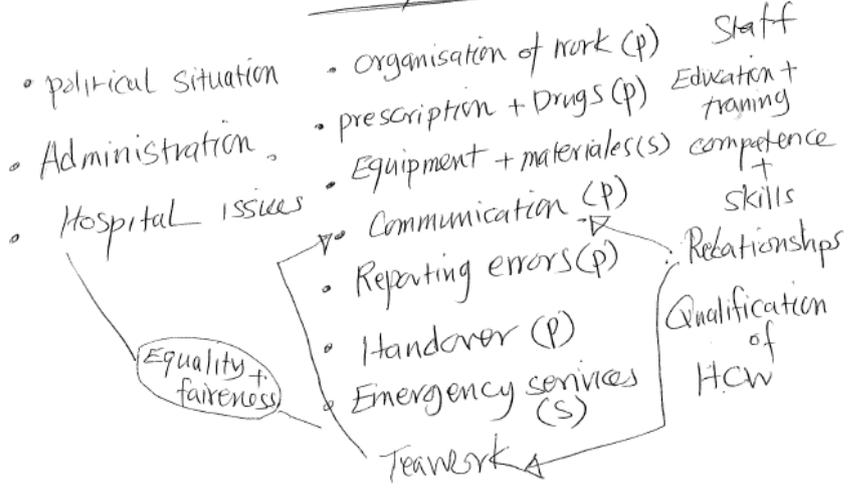
2 step

Cultural + Social issues

politics + policy

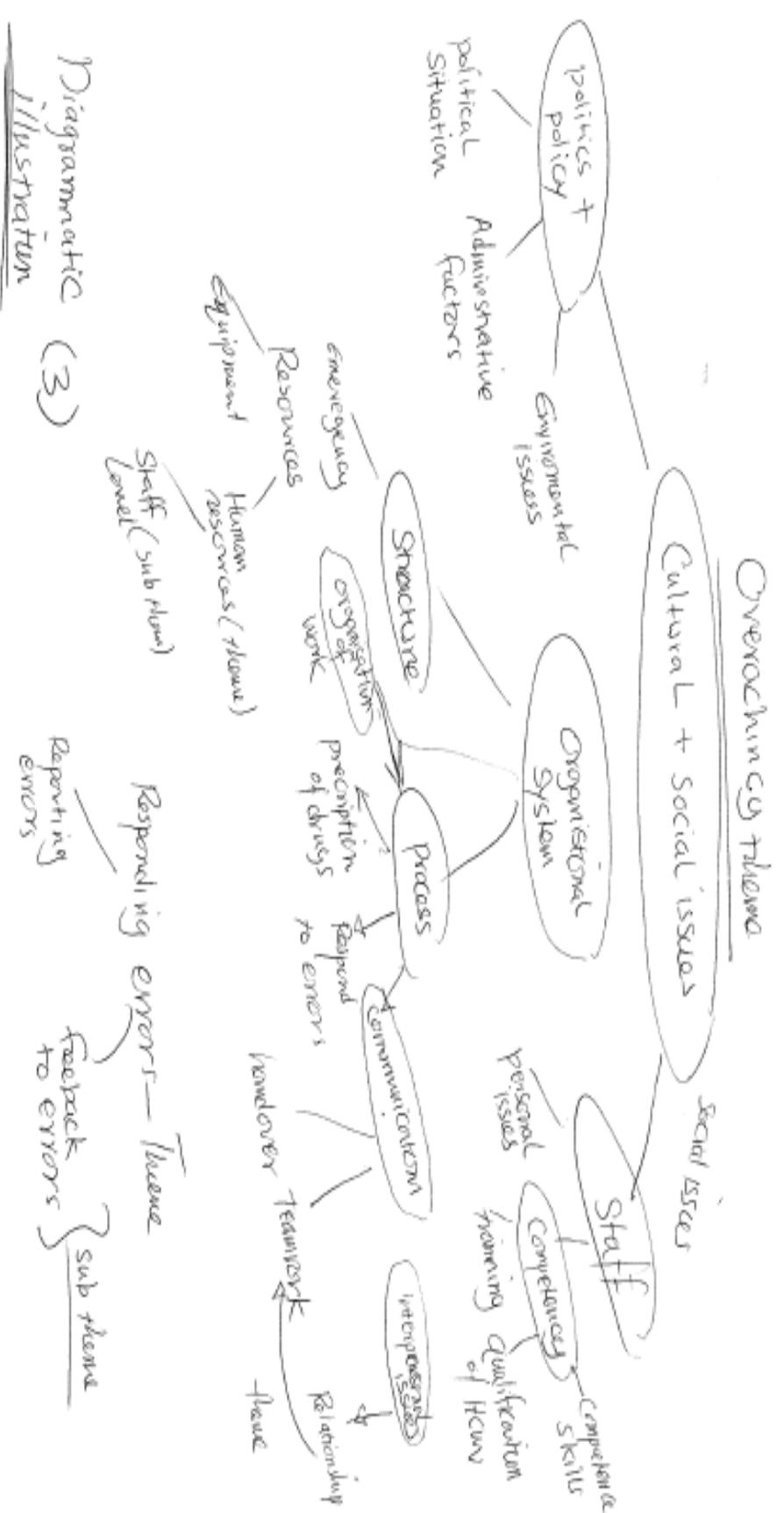
Organisational + system

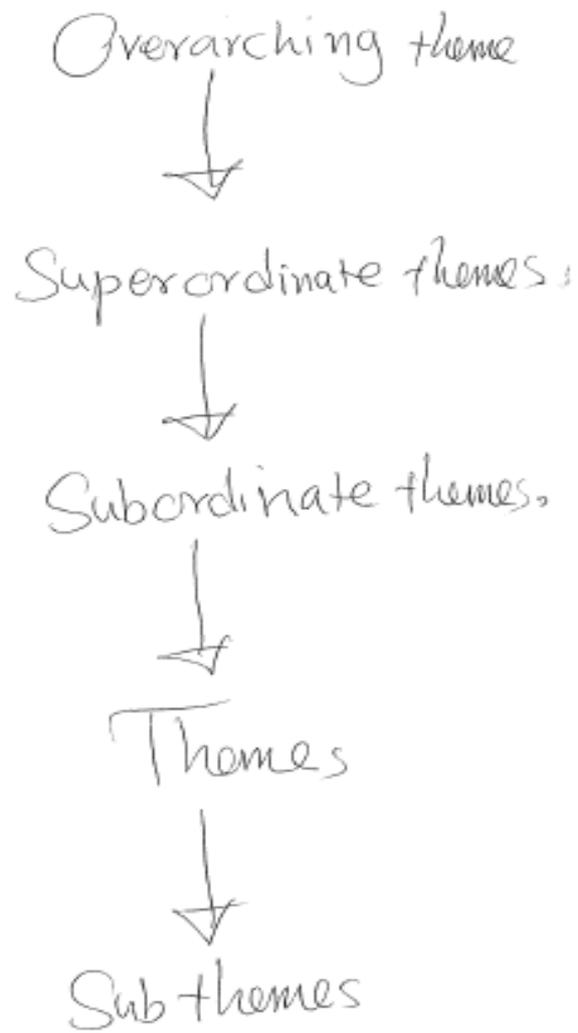
Staff



feedback + response (p)

Investigation issues





Data Categorisation (4) step

Appendix 15 Theme coding table

<u>Superordinate theme</u>	<u>Subordinate theme</u>	<u>theme</u>	<u>subtheme</u>
<u>1.Politics and policy Code PP</u>	<u>1.1 .Political situation Code PP1</u> <u>1.2 Administrative factor Code PP2</u> <u>1.3 Environnemental issues Code PP3</u>	<u>1.1.1 Revolution issues Code PP1.1</u> <u>1.2.1 Hospital managemnt Code PP2.1</u> <u>1.3.1 Hospital issues Code PP3.1</u>	

<p>3. Health care workers Code: HCW</p>	<p>3.1 Professional issues Code: HCW1</p>	<p>Code OPS5</p> <p>3.1.1. Accountability</p> <p>HCW1.1</p> <p>3.1.2 Clinical policy</p> <p>Code HCW1.2</p>	<p>Code OSP4.2</p>
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<p>4. Patient's family and community Code :PFC</p>	<p>4.1Social and cultural factors Code PFC1</p>	<p>4.1.1 Awareness issues code :PFC1.1</p> <p>4.1.2 Health care workers social life issues Code PFC1.2</p>	
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Appendix: 16 Interview Sample

Participant code: AWHS

R: What support systems are in place in your hospital to help you deal with patient safety issues?

1S: A long time ago we established a medical protocol for the treatment of clear cases
2like meningitis. For example, we have common steps for treatment of this disease and
3we, as doctors, are agreed on these steps. For example, all ages of children have their
4own antibiotics dosage, duration and investigative procedures. Fortunately, because we
5are agreed about these procedures as we are specialists that have come from the same
6school. And this protocol is updated if there is a new drug or if a new disease is
7discovered. The accountability in our hospital consists of two types. The first one,
8relates to the case of the patient's family. If they feel that there was a medical error with
9the patient and they then make a complaint to the Head of department, he will then
10transfer it to the Director of the hospital for transfer to the hospital's scientific
11committee. They will study the case and give opinion on whether there was an error or
12not and transfer it the court if was found to be an error. This committee consists of
13different consultants from different departments of the hospital. The second type is
14when the complaint goes through the court and then the Director of hospital and then
15Head of department and then to the scientific committee. Based on the report, the judge
may call some doctors to the court.

R: In your opinion how does communication between professionals affect patient safety in your hospital?

16S: In our hospital we have the classification of doctor's positions, such as first doctor,
17second doctor, third doctor, first specialist, second specialist and consultant. And
18everyone has a job description. Also, we make a clinical around every morning, which
19the consultants do three times a week and the specialists daily with other doctors.
20Therefore, the percentage of error is very low; however, if an error happens the doctor
21on duty calls the first doctor and then the second doctor who are on call if case of
22emergency. Usually errors are discovered during doctors' rounds and if the error is

23simple and manageable, the Head of department blames those responsible for it. If the
24error was not simple, he would transfer a report about the case to the Director of the
25hospital and action will be taken based on his judgement.

R: When an error occurs what procedures are followed to manage this in your hospital?

26S: You are talking about ideal things when you ask about reporting systems. I'm sorry
27to say that we have countless problems and we are very frustrated because the system
28in our hospital is wrong. Let me talk with you frankly. In our hospital errors have
29happened and when the hospital's management was notified about them they did make
30any response. There are no punishments or rewards and this situation lead to
31disorganisation between the medical members, the paramedics and employees
32generally, and it has become a very disorganised hospital. And I should say it.
33However, if you report a problem, the opposite happens and you will be blamed by the
34friends, family, and relatives. In our society, social relationships are strong and they
35have an effect upon work decisions. The chemistry of our society is different from
36civilised societies. Therefore, we find ourselves facing problems and confrontation
37with healthcare workers and their family. That is why I should make a balance between
38professional ethics and other things which I can ignore. But we do not have a reporting
39system for errors. Can you tell me why? Yes, because we are frustrated by the
40management as we make many reports about problems and we do not hear from them.

S: Let me tell you, before the revolution there was a little bit of organisation. Why do you
think that? Because there was a sort of stability.

41We had a death meeting to discuss why a patient had died, who was the responsible for
42carelessness of the staff, and what problems there might be with equipment and drugs,
43so that we can compensate for shortfalls. We put everything in a report and then we
44send it to the hospital's Director in so that responsibility is taken from us; .if a problem
arises after that we will not held responsible for it.

R: In your opinion what level of importance does your Head of department place on
patient safety?

45S: Again, the problem is that our hospital Director has power over everyone in the
46hospital and he controls everything. The hospital does not run by a board, so he is the
47one who makes all the decisions. So, you will find yourself frustrated and with all

48hospital problems turning in the same circle. We had a journal club and a clinical
49meeting once a week with a group discussion to discuss any disease or any shortage
50and we tried to write our requirements for equipment and drugs and send them to the
51hospital management. Also, in the clinical meeting we updated ourselves about what
should be done in our department.

R: In your experience how does your hospital help you learn from your mistakes?

52S: The learning organisation does exist in our hospital's policies, but I do not know to
53what extent it is put into practice. The application of this policy depends on the Head of
54department and the Head depends on his medical staff. Also, it depends on how helpful
55the hospital management is with the Heads of the departments. The situation after the
revolution is a catastrophe.

R: Can you tell me why?

56S: Yes, there are some doctors and nurses who do not attend their work. There are
57many factors, such as lack of security and careless and bad organisation that leads to
58the Head of the departments losing their authority and the breakdown of the official
59relationship between him and his staff. So, the Head of department tries to solve work
60problems based on his relationship with his staff. The reason for this is that there is no
61Health Ministry. In this time, the health care has been very low due to there being no
government. In future, we are expecting that the situation will be better.

R: In your opinion how does communication between professionals affect patient safety in
your hospital?

62S: There is a good administrative structure which is helpful for good communication
63between doctors. We have a first specialist and a second specialist etc and we have a
64clinical round every morning and there are orders to be followed. There are teaching
65and clinical meetings, so there are scientific activities as well as activities that are
66supported by personal effort. Despite the current circumstances, our outcomes are still
67good. In general, there is good communication between some of the healthcare workers.
There is a problem in the communication between doctors and some of the nurses.

R: Can you explain why?

68S: The communication is not good because there are some nurses that are not well
69educated, so they do not follow the doctor's orders in giving a dose at the correct time
70and that even do not follow some of the orders. I think the reason for that depends on
71the nurses' culture and respect for work. And some nurses have a work overload so they
do not take any further orders but, generally, most of the nurses are fine.

72Before a doctor or a nurse starts their work, they will find in their contract an
73explanation about their profession and the performance rates and their job description,
74but the problem is that this information is not put in practice. I can give you an example.
75Some of the new SHO doctors do not work according to the rota and when that has
77happened, the Head of department takes their place. The problem is that when the Head
78of department reports this absence to the hospital management, they do not take any
79action against them. And you know that when other staff hear about that, they will be
80encouraged to be careless and will be absent from their work.

We are 50 doctors and I 81can tell you just 12 or 15 are good at work whilst the others are
not disciplined.82The number of health care workers in my department should be 35
workers and I have 83got 50 healthcare workers and this overstaffing leads to a negative
outcome.

Can you tell me why? Because everyone relies on each other. For example, when there is
84a duty at night and 4 doctors ought to come for this duty, perhaps two come and the
85other two do not come as they think their colleagues will cover for them. And it is a
86problem if I just put two doctors in the rota, as I cannot be sure that they will come.
87Again, the problem is, if I report that case to the hospital management, they do not take
any action.

R: Can you tell me what level of importance your hospital management put on patient
safety and can you give an example to support your answer?

88S: I will give you a proverb which says a loser of something cannot give it. The
89principles of hospital management, safety and quality are not applied in our hospital.
90The second thing is that our hospital does not operate by a board. Our hospital is
91controlled by one person who does everything and is responsible for everything. Even
92if this person was good, he cannot do everything alone and be responsible for
93everything. It is not a matter of power but of knowledge and skills. We should have a

94board which consists of each Head of department and other departments, such as the
95maintenance and finance departments. We should have a meeting once a week to
96discuss the hospital's problems and how we can solve them for arriving at informed
97decisions. It is wrong that one person is responsible for the whole hospital. He will face
98strong social pressure from his relatives who will confuse his capacity to perform. It is
99not necessary for the Director of the hospital to be a doctor. He can be an accountant or
100a manager, as long as he works on doctors' requests. Here, it is the opposite, as our
101director interferes in everything. We need a hospital management that gives more
102authority to the hospital's departments in which the hospital management responds to
103the recommendations and requirements of the department. But, I'm sorry to say, we
104are frustrated, frustrated, frustrated as we ask for many things without any action from
105the hospital management. There are no punishments and rewards and nobody listens
106to the scientific opinion. To be honest, I cannot say that the Director of *-our hospital
107is the only one responsible for the hospital's problems, but it may be something that is
108out of his control and the problem lies with the Ministry of Health. The old Libyan
109health system is fully centralised. Every manager has above them another manager
110and every one puts the responsibility on other ones and everyone blames the people
111who are at the highest level of authority. Managers at the lower levels say that the
112managers at high levels don't repond to their requests and we do not know where the
problem is.

R: In your experience how does the handover process between shifts affect patient safety
in your department?

113S: The problem with the handover is the delay of some staff in coming on time to
114their work from the rota. This delay makes some doctors have to wait for another hour
115until the next shift comes. There is no punishment taken against them, even if you tell
116the hospital management. Most of the time it is good. The absence of nurses from
117their duty, it is an old problem. We have had one or two patients who have died due to
118there being no nurses available at the time. Also, during the revolution there were
119some nurses that did not come to their duty and, therefore, some doctors worked as a
120nurse to cover for them. So, it depends on the commitment of the staff to their work.
121We do not have a code in our hospital that every healthcare worker has to sign.
122Unfortunately, the nurses have graduated from a middle institution and these schools
123have students with low percentages sent to them and with bad reputation in education.

124Also, the system of education for nurses and its assessment are not good. Before, we
125had foreign nursing staff, so the quality of their work was good compared with Libyan
nurses.

R: When a patient is transferred to your department can you tell me how the handover process affects patient safety?

126S: We do not have any problem with patients transferring, if a patient needs a surgical
127consultation and a surgeon to come. We call him and after the consultation, if the
128patient needs to be transferred, the surgeon will transfer him with the help of the
129nurses of the department where he is going. If the patient needs to go to another
hospital, there is an ambulance with a doctor ready to carry them.

R: In your experience how does your hospital help you learn from your mistakes?

130S: There is a policy for training and teaching in the hospital and we should encourage
131learning from our mistakes. Some departments apply this policy and there are others
132that do not care about it. R: Why it depends on the commitment of Head of department
and staff.

133S: As I mentioned, we have a death meeting and a scientific meeting but the
134attendance of healthcare workers is low. The good doctors are those that attend and
participate in these meetings. I need to mention something here before I forget it.

R:Can you tell me please?

135We are not in the main hospital building. We are in the polyclinic and it has been
136modified to be a temporary hospital as the original one is still under maintenance and
137it needs maybe more than two years to be ready and fully equipped. So, we were
138asked by hospital management to achieve 30 % of their performance rate as the place
does not help. Even this building itself needs maintenance.

R: From your observations do you think healthcare workers are concerned about personal consequences when they report an error in your hospital? Please explain the reasons for your answer?

139S: Unfortunately, not all doctors are as good as I said- just about 30% of my staff are
140good. And 60-70% when they have made an error, and I tell them the correct
procedure in a diplomatic way, they, frankly, do not accept the advice.

R: Can you please explain more please?

141: Ya, For example, we have some doctors that did not give a correct treatment for a 142
case when I told them about the correct dose and how they could calculate it. The problem
is the second day I found they had repeated the same error.

R: Can you tell me why they do that?

143S: I think because they did not get a punishment and they are not civil persons that
144feel responsibility when they have made a mistake. One time, I remember a nurse
145came to me and she told me that she made a mistake when she gave a patient an
146overdose of antibiotics and it was not serious. And she said I know that nobody knows
147about it but I am afraid from my God and I am concerned about the patient. So, she
148was a responsible person and we have nurses and doctors who are not willing to give
149them clinical advice, even in person, and they are still making the same mistake. As I
said, they are careless.

R: In your opinion how does teamwork between your hospital departments affect patient
safety?

150S: We are frustrated because despite all these good ideas that we have, the problem is
151that we do not have the authority to put them into practice. For example, we had had a
152scientific day in which every department had to present their common disease to other
153departments. Also, we had coordination with the gynaecology and obstetrics
154departments, as these departments and ours have a work connection, as with the case
155of neonate unit. But these meetings and group discussions have stopped due to there
156being no active participation from all the doctors. But, such meetings are still carrying
157on in the Faculty of Medicine because the participation was compulsory and not
158voluntary as in this hospital. The difference is that doctors who work in the Faculty
159have to participate in these activities. The culture of a right to a salary is dominant
160among healthcare workers whether they work or not. This leads to healthcare workers
161being treated financially the same, whether they work or not. So, this results in staff

162not caring about learning or training as long as they get their salary and no
163punishment measures are taken against them.

R: Can you tell me anything else about patient safety in your hospital which we did not cover during this interview?

164S It is very necessary to have a good hospital management that is run by a board and
165not by one person. The board should include different persons from different
departments, even the finance and maintenance departments. R: Why?

165 S: Because, with a board such as in one meeting, we could solve all our problems. 166
We would have daily direct communication between different departments to discuss the
hospital's problems.

R: Can you give an example please?

167S: For example, if we have medical equipment this is broken, the board will find out
168why that happened and will sort it out easily because all parties are present, including
169the financial and maintenance departments. So, if the problem was a matter of money,
170the financial department will work to solve it. Punishment and reward laws are
171necessary to solve many problems in our hospital. We should make assessments of all
172health workers every year, with points regarding the attendance and scientific
173performance, and they should fulfil the job requirements, based on their assessment,
before the hospital management decides whether to renew their contract or reject them.

174We should have a health education program for the community to be aware of the
175shortage in the hospital's resources. We should have people who care about
176sterilisation and prevention measures to prevent infection between doctors and
177patients. They should be concerned about medical wastage. I am sure that infection
178will be reduced and they should have authority on their side. We should be concerned
179about hospitalisation as many people do not like to stay in hospital, not because
180doctors are bad but because the facilities of the hospital are bad. The majority of
181Libyan patients go outside the country to seek care due to bad hospitals and the lack
182of patient–doctor interaction and bad quality of hospital services, I think that those
183problems have happened due to there being no good facilities like a good office for
doctors so they could spend much more time seeing their patients.

Appendix 17: Themes Sample

Superordinate theme	Subordinate theme	theme	subtheme
1.Politics and policy Code PP	1.1 .Political situation PP1	1.1.1 Revolution issues PP1.1	1. AWH5 Revolution implication n.56-62 2. AWHD1 Revolution implications47-49 3. AWHP Implication of the revolution 75-78-82-87 4. AWHT1 Security situation 284-290 5. ABHD1 Shortage medical material in uprising 5-10 6. ATH2 Security situation 98-99 7. ATH1 Revolution positive implication 38-39 8. AWHN1Revaluation implications 156-159 9. AWHT2Security situation 51:52 10. AWHT1Corruption 113 11. AWHT1Seeking the health care outside of the country153 12. ABHM Corruption of the old regime 18-20 13. ATHN1 Effect of the revolution on work 94-95 14. AWHT2Lack of the security 60-61-64:65 15. ABHP Revolution implication 16. AWHT2 Revolution implication 47-52 17. AWHT2 Lack of the security 60-61-64:65
	1.2 Administrative factors PP2	1.2.1 Hospital management PP2.1	1. AWHT2 in effective management 53:55- 58:59 2. AWHT2Hospital management's transparency 39 3. ATHN2 Poor Hospital management's performance 22-23 4. AWH5 Careless of hospital management 82-85 5. ATH2 ineffective hospital management 80-82 6. AWHT1Poor priority of hospital management 94 - 95 7. AWHN1Hospital management's dealing with staff 88-91 8. AWHT1 ineffective hospital management 17-18 9. AWHN1Unfairness hospital management with staff 104-105

Superordinate theme	Subordinate theme	theme	subtheme
2. Organisational system Code: OS	2.1 Structure OSS1	2.1.1 Emergency services OSS1.2	<ol style="list-style-type: none"> 1. WHT1Emergency services 25-28 2. AWHN1poor emergency services 171-175 3. AWHP Emergency policy 88 4. AWHD1Poor Ambulance services 4-5 5. ATHA First aids team 56-58 6. ATHA Emergency department design issue 66-70 7. ATHD1 Ambulance services 88-90 8. ATHD1Emergency service 105-107 9. ATHNM Emergency team 106-107 10. ATHD1People interfere in emergency process108-110 11. ATHD1Emergency services shortage 110-112 12. ABHN2lack of emergency services 90-91 13. ATHN1 Medical Emergency Team 78-84 14. ATHD 1Shortage of emergency services 110-112

Appendix 18: Research reflection

- **Researcher reflection example on the analysis of the political and policy superordinate theme.**

The researcher reflected upon the data analysis conducted during the interpretive phenomenological analysis (IPA) on the superordinate theme related to the political and policy situation and was not surprised its findings. The concerns and the experiences of health care workers, regarding the effect of the political situation and policy on patient safety, did not come as a surprise to the researcher as he is a Libyan citizen who has lived most of his life in the country; although resident in the U.K. whilst conducting the research, he is kept up to date and fully aware of the Libyan political situation by his regular communication with his family and relatives who are resident in Libya and who use the public hospitals. This background enabled the researcher to effectively analyse participants' perceptions, and empathise with their feelings, having lived in their world and shared their experiences. As such, the researcher was able to produce a meaningful analysis and make sense of the participants' views and opinions about the effect of the political system and the implications of the revolution on patient safety. The researcher himself is of the opinion that the implications from the political system and the revolution may have an effect upon patient safety for many years to come.

- **Researcher reflection example on the analysis of the organisational system superordinate theme.**

The researcher was, himself, one of the users of the Libyan health care system services, including the hospitals, and he had also been working as a director of a medical centre in Libya. This enabled the researcher to understand the world of health care workers; he knew where they worked and fully understood the

perceptions and concerns staff may have about the effect of a poor organisational system upon patient safety. The research tried to connect his experience in the interpretation of the participants' views to construct a comprehensive understanding from the two-fold interpretation, i.e. participant and researcher, to capture those aspects and issues that have an effect on patient safety as a result of poor organisational systems in the 3 hospitals.