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Maternal emotions during the first three postnatal months: Gaining an hermeneutic understanding

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ABSTRACT

Background

Maternal emotions in the first three postnatal months are rarely explored yet in the German context despite it is known that they play an important role in the complexity of maternal health and well-being.

Aim

Gaining understanding of maternal emotions and how the developmental process of the infant circadian rhythm influences them during the first three months of the postnatal period.

Methods

A Gadamerian-based research method was used to explore the experiences of 15 mothers in Germany. *Findings*

'Being needed' and 'being in need' emerged as the first two themes and were further explored hermeneutically. This resulted in the findings of 'emotional balance and conflicting emotions' as underlying maternal emotions during the first three months following birth.

Discussion

Understanding maternal emotions during the first three months of the postnatal period has the potential of opening new pathways for improving maternal health and well-being.

Conclusion

A spectrum of maternal emotions, maternal uncertainties and maternal needs exists in the first three months of the postnatal period.

Statement of significance

Problem or issue

The focus among the most relevant studies in postpartum-related research is on exploring aspects more related to postnatal emotional depression than postnatal emotional well-being.

What is already known

Maternal emotions play an important role in the complexity of maternal health and well-being during the postnatal period.

What this paper adds

An hermeneutic understanding of maternal emotions and the developmental process of the infant circadian rhythm during the first three months following birth.

1. Introduction and background

Maternal emotions play a complex and influential role in maternal health and wellbeing during the postnatal period.¹⁻³ The postnatal period is defined by the World Health Organisation (WHO)⁴ as a critical phase in the lives of mothers and newborn babies for both the well-being of mothers and newborns with most maternal and infant deaths associated with childbirth occurring during this time. As well as the visible transition from woman to mother, major hormonal changes also take place during this period.⁵ Despite the acknowledged importance of the postpartum period, it is the most neglected period related to childbirth for the provision of quality care⁴ and this stimulated our interest in carrying out this study in southern Germany with the aim of gaining understanding of maternal emotions and how they are in-

fluenced by the developmental process of the infant circadian rhythm during this time from a midwifery perspective. Four main studies are particularly relevant to the present study.^{1-3,6} Dennis and Dowswell's¹ systematic review provided quantitative data that underlined the importance of psychosocial and psychological interventions for helping to prevent postnatal depression in postnatal care. Their findings were meaningful due to the reliability of their data that derived from the largest available meta-analysis of maternal emotions in the postnatal period. Psychological or psychosocial interventions and depressive symptoms were shown to be reduced when professional- or family-based emotional interventions such as listening were implemented. One randomised study they reviewed was also included here as it explored the interventions of listening, supporting, counselling, understanding and explaining among 120 postnatal primiparous women in more detail.³ The authors concluded that through understanding, counselling, explaining and support, midwifery benefits psychological well-being. Lavender and Walkinshaw,³ however, did not provide a direct link between the emotional midwifery support with practical help that relates to the developmental process of the infant circadian rhythm which might have enriched their findings. Kurth et al.² evaluated the evidence available in qualitative and quantitative studies related to various maternal experiences of fatigue in new mothers and infant crying. They found that infant crying and maternal fatigue in the postnatal period are closely linked and concluded that family health can be strengthened from the earliest stage when infant crying and maternal fatigue are addressed by health care professionals. Those aspects supported the need for the present study because their conclusions identified the need to gain a deeper understanding of maternal emotions related to the developmental process of the infant circadian rhythm. Santos et al.'s⁶ qualitative study with 15 participants explored the feelings of recent mothers during the postnatal period. Despite some methodological weaknesses, such as a lack of information about the recruitment strategy and how they conducted their semi-structured interviews, the authors concluded that recent mothers 'require the care and support of family members and health professionals, to deal with the emotional changes of motherhood'.^{7, p. 858} Each of these studies showed that the focus was on exploring aspects more related to postnatal emotional depression than postnatal emotional well-being.

In Germany, where this study was undertaken, midwives are the primary care providers in the physiological postnatal period but the law stipulates they must refer to a doctor if abnormalities develop.⁷ In the year 2017 most women gave birth in hospitals from which 30 percent (n = 231.204) were discharged between day one and two and 67 percent (n = 514.861) between day three and six, irrespective of the previous mode of birth.⁸ If women wanted follow up midwifery care they were required to seek the services of an independent midwife, although payment for this was made by the insurance company with which the woman was registered for health care. The health system intends every woman to receive midwifery care in the postnatal period but, due to a lack of midwives, this service was not available in all regions in Germany.^{9,10} This might be related to a poor financial remuneration based on a fixed rate for a home visit irrespective of its duration,¹¹ which does not compensate time-intensive midwifery, for example emotional work.

2. Methods

As stated above, the aim of this study was to gain understanding of maternal emotions and how they are influenced by the developmental process of the infant circadian rhythm during this time from a midwifery perspective. The key point of gaining understanding lends

itself to a hermeneutic approach as the hermeneutic circle in itself is a metaphor for understanding.^{12, p. 296} We adopted a Gadamerian-based research method¹³ in this study primarily as it was expected to achieve the aim. Further, the developmental process of the method indicated a range of strengths, for example the use of original German texts rather than translated material. Finally, as the method has been widely used,^{14,15} it has shown its durability. The method comprises five steps that guided this research: 'Generation of the research question', 'Identification of the existing understanding of the researcher', 'Establishing trustworthiness', 'Gaining understanding through dialogue with participants' and 'Gaining understanding through dialogue with the text'.

Two main research questions were generated and explored: 'What emotions do mothers experience during the first three months of their baby's life?' and 'How does the developmental process of the infant's circadian rhythm affect maternal emotions during the first three months after giving birth?'

Identifying the principal researcher's existing understandings was achieved through mind maps, discussions and self-reflection processes. These were noted in a research journal to confirm or reject the researcher's own pre-understandings and reach a fusion of horizons with the participants. They comprised findings based on personal and professional experiences, such as for example the pre-understanding of the first author which she experienced herself in the postnatal period: '*It is simultaneously the most fascinating and most challenging life experience that I have ever had, because it affects my whole life, all my dreams, my individual future and all of the relationships which are important to me*'. These were shared with other members of the research team who also addressed their own pre-understandings. As the research progressed, these initial pre-understandings changed and this was noted in the reflexive journal. This facilitated the development of understanding of all of the authors.

Understanding was gained through dialogue with 15 participants and dialogue with the text, as referred to below. Initially unstructured interviews were carried out with the 15 participants who were asked to respond to the question: 'Could you share your emotions that you had during the first three months of your baby's life?' The unstructured interviews were followed by 15 semi-structured interviews. They included five questions that were adapted to each individual interview situation: 'What different feelings and emotions did you experience during the first three months of your infant's life when the infant circadian rhythm developed?', 'Could you tell more about the feeling of being continuously responsible for your baby?', 'How could you describe the tension between 'being needed' by your child and also being in need yourself during the first three months of life?', 'Have you perceived uncertainties during the first three months of life, if yes: which ones?', 'What is your understanding of breastfeeding or feeding on demand?' To enrich the understanding that was gained in the interviews, one group discussion was conducted with six participants where the main emerging themes were discussed. All interviews were conducted face-to-face or by telephone and the participants were offered the choice as to their preference. The interviews lasted between 20 and 47 min and were conducted between three to twelve months following birth. All interviews were recorded and transcribed verbatim.

The process of 'gaining understanding through dialogue with text' involved interrogating the data that emerged from the unstructured and semi-structured interviews, the group discussion and developmental processes of the researchers' pre-understandings. The Gadamerian understanding of 'text' was applied which meant that not only the written transcripts, but also all observations, pre-understandings and written comments in the research journal were considered as

text.¹² All texts were carefully explored under consideration of the recommended steps. However, these steps were not linear but rather cyclical in accordance with the principles of the hermeneutic circle in which understanding of the parts of a text implies an understanding of the whole text and vice versa. In order to develop understanding, a movement between the parts of the text and the whole text and back to the parts is required. While this is vital, according to Gadamer, the key to understanding is to enter the hermeneutic circle, or begin the process of understanding in the correct way, that is, by identifying what one already knows of the topic of interest.^{14, p. 71} It is this 'toing and froing' between parts and whole that permits new understandings to emerge. Gadamer^{12, p. 384} notes that 'the domain of hermeneutics is universal and especially that language is the form in which understanding is achieved'.

2.1. Participants

Purposeful sampling was used to explore multiple perspectives of individuals by choosing a wide range of participants. German speaking mothers whose babies were born healthy between weeks 37 and 42 of the gestation period were included. Seven mothers had given birth for the first time while others had previous experiences. One mother shared her experiences after having given birth to her fifth child. All women were cared for by independent midwives in the postnatal period. All women but one were supported by the father of the baby during this time. One obstetrician and one midwife acted as gatekeepers and provided the initial contact with the participants of this study. Recruitment took place only after oral and written consent of every individual participant under consideration of further ethical aspects.

2.2. Ethics

Ethical considerations informed the whole research process. Informed consent, confidentiality, the use of pseudonyms and autonomy were major ethical aspects within this study. All raw data collected for this study are available and can be requested from the first author. The data were collected and transcribed by the first author of this article while conducting a PhD study and completely peer-reviewed by three of the other authors of this article. Ethical approval was granted by the University Research Ethics Committee (HLS id: HLS12/06). Trustworthiness of the research process and data analysis were established through considering auditability, confirmability, credibility and objectivity.^{16,17} Credibility and confirmability were addressed by member checks, returning all transcripts to the participants and the provision of direct quotations. One specific aspect of trustworthiness was a careful consideration of how language related challenges were considered. All interviews were conducted in Germany using the German language. Three of the authors speak German which enabled interaction within the research team while the interviews were conducted. As it was important not to lose meaning during the necessary translation processes of selected quotes, recommendations of van Nes et al.¹⁸ were used for guidance. Particular concerns were to remain in the original language for as long and as much as possible and to take special care when metaphors were translated.

3. Findings and discussion

This study shows that a spectrum of maternal joyous and strenuous emotions, maternal uncertainties and needs exists in the first three months of the postnatal period. 'Being needed' and 'being in need' were the first two themes to emerge from the research. When

these findings were explored further and interpreted hermeneutically, emotional balance and conflicting emotions emerged as underlying maternal emotions during the first three months following birth. This findings' section is therefore structured into the three themes of 'being needed', 'being in need' and 'emotional balance and conflicting emotions'. The discussion of findings is interwoven into the following finding sections according to the chosen research method.¹³

3.1. Being needed

The data suggest that 'being needed' relates to a fulfilling and challenging emotional experience of life. This includes both joyous and strenuous maternal experiences. The mothers in this study suggested that they experienced fulfilling emotional experiences of life through 'indefinable joy', 'exclusive intimacy' and the maternal perception of 'timelessness'. They also shared insights into challenging emotional experiences of maternal exhaustion and fatigue that were closely linked to the developmental process of the infant circadian rhythm. Lisa experienced indefinable joy intensely after her birth and remembers:

So immediately after birth I remember [...] this 'indefinable' feeling. That it really is...the baby is here! This...I remember having said at least 20 times in the labour ward: This does not exist...No he is there. That just does not exist... doesn't exist! Yes, I think there aren't any words [...]. It rather is this it's an incapacity to describe it [...]. That this important transition in the baby's life has happened. And yes, I really have become a mother. This is such an important moment- maybe especially after the birth of the firstborn. This 'indefinable' feeling maybe was the first feeling of all. (Lisa, interview 3.2, paragraph 9)

Lisa explained that the feeling of 'indefinable joy' was one of her first feelings after birth. This aspect of 'joy which is inconceivable' was important for her. Interestingly, Lisa shared emotions that had come suddenly and could not have been planned or anticipated beforehand, which has also been referred to by Santos et al.⁶, when she stated:

Unbelievable! Just unbelievable! Now the new phase of life is there! I do not know but this is kind of being overwhelmed, which means being positively overwhelmed but also kind of a questioning: Is it this now really? Has this really happened? (Lisa, interview 3.2, paragraph 14)

Lisa became a mother at the age of 39 years and her interview revealed an exciting range of life experiences. Very touching was her feeling of her child being a present to her — which was not at all a matter of course to her, to be taken for granted. For 17 years she had been in a relationship with a different partner from the one with whom she was living when she gave birth. When she decided to end the relationship with her former partner, she wondered if that decision would result in her having no children at all. She really felt in a conflict and experienced the feeling of being blessed with her child in various ways after she gave birth.

Participants in this study both felt deep internal joy and fascination which was stimulated by various sensory stimulants, for example by visual impressions. Elke experienced it in the following way:

You just look at the baby and everything is good. You forget everything else, even if a lot of other things are going on. You look into his eyes and then everything is just wonderful... (Elke, interview 12.2, paragraph 23)

Elke outlined that the eye contact of her baby made her happy. Grace experienced the first smile and the various facial expressions of her baby as a trigger for her feeling of joy:

I think it is a wonderful feeling when they are lying there so near to the breast. I am impressed when they start laughing and the various facial expressions develop... (Grace, interview 6.2, paragraph 10)

Grace's experience reflects the finding of previous studies that eye contact is a well-known trigger for successful bonding during the first days of life¹⁹ as are the facial expressions of the baby. Elke also experienced the laughter of her child as a stimulus which made her happy. She stated, however, that the perception of joy was not the same every day.

It starts early in the morning, when he laughs, he laughs at me and I think: ok, this day must be a good day! I experience so much joy with him. Every day is different but irrespective of all: It is just wonderful! (Elke, interview 12.2, paragraph 16)

Interestingly, all mothers who participated in the study identified that different tactile and specific sensations played important roles in the development of the mother-baby relationship. Alice experienced it in the following way:

There are so many little steps during the developmental process of the child. In fact, these are huge steps forward: The child smiles, starts babbling...sometimes sleeps for a few hours at once... (laughing). [...] I consider those experiences as emotional 'highs' that I characterise as 'extremes'. This means for example that I do not say: Oh, I notice my baby babbles but that I express: Yeah, my baby babbles! (Alice, interview 1.3, paragraph 11)

Alice stated in her own words that the 'small progresses' were the important triggers which made her happy. These 'small progresses' also brought happiness for Grace, who shared:

And every day is different. [...] during the first few weeks. It is incredible what is happening during this time. It is really impressive how a child progresses from the first day onwards. (Grace, interview 6.2, paragraph 10)

Some mothers however were more reactive to the eye contact and others more to the smell of the baby or the various infant facial expressions. Barbara however experienced it in the following way:

It was just horrible. I haven't enjoyed it at all [...]. She was just so active and has cried for the first three months of her life. To this day I do not know the reason for her crying. It was very strenuous for me, especially as I had two other children. (Barbara, interview 14.2, paragraphs 9-11)

The exclusiveness of intimacy was also experienced as a stress factor by Lisa who referred to experiencing a hopeless situation:

I felt so helpless and so abandoned by the situation that I thought this is worse than the worst nightshift [...] I It is just horrible! Yes, I can't even imagine being able to do the things I did before; I feel as though I'll never be able to go out, or attend an event, or even just do something together with another adult person, ever again! Your perception of the future is clouded unrealistically [...] you cannot imagine, in that hopeless moment, that your situation will ever get better again. (Lisa, interview 3.2, paragraph 32)

Beside the challenges related to exclusive intimacy, another aspect of exclusive intimacy as a fulfilling emotional experience of life emerged. It is the maternal perception of 'timelessness' that was uniquely experienced by Jane who added to the current findings her experience of 'timelessness' that included both aspects of 'incredible joy' and 'exclusive intimacy'. She explained her fulfilling experience of the postnatal period in the following way:

It is difficult to describe. You don't need anything else anymore. You could just look at the child for hours on end and watch how he sleeps and how he makes facial expressions. So, in a way this is like being in a stage of 'timelessness'. Yes, it is the perception of 'timelessness'. (Jane, interview 8.1, paragraph 17)

Although the term 'timeless' was only used by Jane, this was an important finding because it enriched the existing understanding of joyous maternal experiences during the postnatal period. Jane was able to provide deep insight into this feeling and voiced her experience of timelessness with the following words:

It is like everything around me became blurred. This is just wonderful [...]. It is difficult to describe but just lie there, look at my child and the hours pass by in a way that I forget everyday life. This is the reason why I always loved to be in the puerperium. Because it honestly is the only time when you just live for the moment. [...] So this 'being one with the child' was the feeling of being in a stage of timelessness. I always liked to experience this so much. (Jane, interview 8.1, paragraphs 16-19)

Jane described the circumstances surrounding her and her baby as being blurred. For her, this meant 'forgetting everyday life' and 'living for the moment'. This related to complete concentration on her newborn and was perceived as 'merging' with the child. These aspects made the time of the postpartum to be something very special for Jane. She further emphasised the importance of timelessness in the sense that other things became 'unimportant' and she felt that 'time seems to stand still':

It is because time stands still. In this week I take the time for this and interestingly I was in such joyful anticipating for this experience in the postpartum that all other things became unimportant. It was just me and my baby. Just this- and I did nothing else other than looking at the child, drinking and breastfeeding... Also, the other children are not so important during this time. It is just this child, this newborn, around whom everything is revolving. This is so wonderful. To put away everyday life and concentrate solely on the newborn. (Jane, interview 8.2, paragraph 90)

Jane's feeling of timelessness adds to the understanding that the moment of birth can be experienced as 'something extraordinary in the lived experience of being there at the time of birth'.^{20, p. 451} The authors identified 'joy at birth' as a phenomenon that often remains unspoken and unexplored but as 'something of significance' that 'at the moments of birth attunes, inspires, beckons and invites us to respond'.^{21, p. 165} Jane's words suggest that she experienced similar feelings; however, these did not occur during birth but during the postnatal period. In summary, participants shared various emotions that had led to a fulfilling emotional experience of life during the first three months of the postnatal period. However, interestingly all mothers shared various challenging emotions which also related to the theme of 'being needed'. Challenging emotional experiences of life were important to mothers when they experienced 'being needed'. They emerged among the themes of 'maternal exhaustion' and 'maternal

fatigue'. Infant crying was reported as the main reason for maternal exhaustion by the participants in this study. Lisa's words suggest how exhausting she experienced her baby's crying to be, to the point that it even caused feelings of aggression:

It was so difficult because he just cried [...]. I had deep feelings of aggression. Because I was tired to death and I felt so helpless that I lost control and shouted, during the second night at home: 'You stupid child!' I felt so shocked- this was an expression of aggression that I never wanted to have. This is not my normal behaviour. But I could not suppress or control this feeling anymore; it just came out of me. It came because he had cried for over ten hours on and on. (Lisa, interview 3.2, paragraph 32)

The notable aspect was that Lisa experienced aggression quite early in the postnatal period towards her baby during the second night she spent at home. Lisa came into a situation that she had never expected to experience. She reacted to the emotional stress she experienced in a way that she would never ordinarily have reacted and that caused her an extreme emotional shock. She did not harm her baby, but experienced an emotion that could have led to maternal violence and child abuse. Literature indicates that maternal aggression due to exhaustion can cause women to harm their babies.^{2,22} Ayerle et al.²³ identified that in Germany continuous care by qualified family midwives has the potential to prevent child abuse and neglect. Care by midwives who have undertaken a further qualification in family midwifery, has the potential to support parents in conflicting life situations through the provision of psychosocial care. Barbara's words also suggest exhaustion as a key maternal experience:

I had a crying baby. I do not know what she had but for the first three months of her life she just cried. Especially because I had a second child it was very strenuous. I can't say more about it. [...] I only was there for my baby because she just cried and only slept on my belly. It just was exhausting. (Barbara, interview 14.2, paragraph 11)

Barbara referred to 'exclusive intimacy' from the opposite perspective, not as something which she found fulfilling but as an exhausting maternal experience. She added that her baby's crying contributed to her experience of exhaustion. Kerstin shared that the crying was worst when her child was aged eight weeks and pointed out one further aspect that explained her exhaustion when she spoke about 'inexplicability':

It was quite chaotic in our case because our Lukas was a real cry baby for four weeks...and then as quickly as it came it was gone. We do not know the reason why. He was such an uncomplicated child at the beginning. And then he was completely the contrary- and now everything is back to normal again. (Kerstin, interview 10.2, paragraph 14)

The published literature shows that 'maternal fatigue' is closely linked to infant crying because of sleep disturbances.^{1,22,24} The link between infant crying and maternal exhaustion has also been noted in the present study. Alice shared that she experienced stress especially when lack of sleep was combined with infant crying:

I think it was especially the lack of sleep. Or even the combination of all. If I have slept poorly, the child has cried for half an hour or even longer and I had no idea why my baby cried. This was an example for experiencing an extreme emotional depth. (Alice, interview 1.3, paragraph 13)

Alice not only referred to the draining experience of her sleep loss but also to her own expectations which were not fulfilled because she had expected the postnatal period to be easier. Whilst women's expectations related to birth are explored from various perspectives, such as experiences with labour pain²⁵ or feelings of 'control' experienced during labour,²⁶ women's experiences remain less explored in the postnatal period. Mothers in this study further provided the important understanding that the emotion of 'being in need' related to uncertainties that emerged when their infant's circadian rhythm developed. Their experiences suggest that uncertainties caused a feeling of 'being in need' that related to infant feeding and infant sleep developmental processes.

3.2. Being in need

Experiences related to the theme of infant feeding were important to all participants because feeding started directly after birth. They shared experiences and uncertainties related to the feeding rhythm, experiences and uncertainties related to feeding on demand and experiences and uncertainties related to relationship dissatisfaction. Alice gave valuable insight when she referred to the complexity of her emotions related to her baby's feeding rhythm:

He was a newborn and it was a two-hourly rhythm consisting of breastfeeding, sleeping, breastfeeding...So, quite typical for how I was told before and I knew. [...] He really did need to feed every two hours, day and night, for six weeks. (Alice, interview 1.1, paragraph 47)

Alice gave insight into her daily life, which comprised a two-hourly breastfeeding rhythm by her baby over a timeframe of six weeks. She shared uncertainties upon her decision to continue breastfeeding her baby:

It is so strenuous. I thought I would cope better but that was not the case. Especially during the early morning hours, I had the feeling that I did not want to anymore. [...] I had the feeling of desperation which came intermittently, it was worst after eight to ten weeks. Yes, this was the worst time I experienced at all. (Alice, interview 1.1, paragraphs 112-114)

Alice's son slept through for five hours for the first time when he was aged eight weeks meaning that for the first two months of the postnatal period she always had less than five unbroken hours of sleep. Alice's words suggested that her mental exhaustion was mainly caused by her infant's crying that she interpreted as signs of hunger as referred to previously. The frequent feeding rhythm was also experienced as exhausting by Elke. She reported that she breastfed her baby hourly for some time:

When I had to stand up every hour and breastfeed my child I only had the feeling that my breast was empty. [...] There was the feeling that my child is not satisfied. I had the feeling he is not well-fed by my breast milk. [...] This gave me a reason to quit breastfeeding and to give him the bottle with artificial milk. I did this because I felt that he did not cry anymore and slept for four, five hours then. (Elke, interview 12.2, paragraphs 51-55)

Elke experienced exhaustion, the feeling that her breast was empty and the feeling that she could not satisfy her baby. Both Alice and Elke experienced exhaustion but decided upon different paths. Alice continued to breastfeed but Elke decided to stop breastfeeding. Women in this study further shared that infant sleep developmental

processes gave rise to uncertainties and various emotions. Sleep developmental processes were identified as the cause for emerging uncertainties. Sleeping through the night was identified as an important issue. However, it was not directly linked to maternal satisfaction, as Jane's words suggested:

It is not at all important for me that he is sleeping through the night. It, however, was important for me when I had my first babies that I can sleep through the night. But today I know that this is part of this period following birth. I know that this time passes by. And I know that the day will come when I can sleep through the night again. This means that sleeping through the night has not a high priority in my life. (Jane, interview 8.1, paragraphs 47-49)

In this context Lucy shared the joyous aspect that she developed new strength when she became a mother even if a situation was experienced as difficult:

How strong you can be. To survive and cope with it all from birth onwards. And despite still being weak you have to be there for the child. To make sure it's cared for. And you do everything for it. How nature enables you to survive...(Lucy, interview 9.2, paragraph 110)

Additionally, Elke shared:

My experience is that I have new strengths since becoming a mother. [...] I am rooted in power of which I was not aware before. (Elke, interview 12.2, paragraph 58)

Anne, however, did not experience 'new strengths' in her case but shared that it was highly important to her that her child slept through the night. She shared the view that the feeding rhythm during the day influenced the baby's ability to sleep through the night:

Even if my baby cried a lot, I tried to breastfeed her often during the day so that she gets enough and sleeps during the night. My theory was that this was important so that she had drunk enough for the night. In fact, I breastfed definitively two-hourly to three-hourly during the day. (Anne, interview 4.1, paragraph 40)

Anne contributed that her child started to sleep through the night but she does not remember making any specific interventions. She reported that her baby appeared to forget to feed during the night:

I always breastfed at around eleven p.m. and she waited for this meal. [...] Following this meal, she wanted to be fed between three and four a.m. This was the only interruption during the night. Following this, she wanted to be breastfed when I was awake in the morning. When she was around five weeks, I woke up in the morning and was surprised because she did not have to be breastfed during the night. At first, it occurred occasionally, but then she just left the meal at three a.m. She had her last meal at eleven p.m. and then in the morning. This happened when she was aged five to six weeks. (Anne, interview 4.1, paragraph 44)

Grace shared similar experiences:

At the beginning, I put her to bed at around ten p.m. Then I needed to breastfeed her between three to three thirty a.m. And after six weeks she slept through completely. Until today. (Grace, interview 6.2, paragraph 20)

Both Anne and Grace reported that their children learned to sleep through within several days after having breastfed during late

evening. Findings in sleep research indicate the ability to sleep approximately six to eight consecutive hours when aged two to three months.^{27,28} Participants further shared that they either paid attention to regular daily structures or that they were not important to them as Jane's words below suggest. Jane contributed that the rhythm of her child became more and more unimportant to her the more children she had. After giving birth to her fifth child she shared that the rhythm became a 'minor issue'.

The rhythm development was more important to me when I had my first babies. [...] Maybe, because I needed more time for myself and I wanted to have all more structured and organised. Today these are minor issues to me, I mean those questions like: When does he drink or how often is he drinking. It is more important that the other children are ready for school in time. [...] Yes, in summary the rhythm developmental process became a minor issue to me. (Jane, interview 8.1, paragraphs 52-56)

3.3. Emotional balance and conflicting emotions

Having described the two themes of 'being needed' and 'being in need', they were deepened by re-entering the hermeneutic circle with its expanded 'whole' and were interpreted under consideration of reflexive processes during the research process. This led the researchers to identify 'emotional balance and conflicting emotions' as underlying maternal emotions during the first three months following birth as encompassing both 'being needed' and 'being in need'. The particular characteristic of this emotion was identified in both joyous and strenuous maternal experiences and its relationship to the infant circadian rhythm. Data in this study provided insight that every mother-baby relationship is unique.

However, understanding was also gained about two possible but different mother-baby interaction processes that increased the initial pre-understanding of the authors.

The first mother-baby interaction process identified relates to the provision of satisfying long feeds and a diversified maternal interpretation of baby's crying. The first interpretation incorporates that this mother-baby interaction process relates to the provision of a satisfying long feed approximately every three to four hours. Following a satisfying meal, the baby may start sleeping and have a long sleeping phase because it does not awaken due to hunger. This enables the mother to rest between the feeds. Mothers may experience emotional well-being due to resting phases between the feeds and babies may react with satisfaction because they experience satisfying meals and compensating sleeping phases. This interpretation incorporates further that this mother-baby interaction process relates to the mother's ability to differentiate between infant crying due to hunger and infant crying due to tiredness. This enables a mother to react differently to her baby's crying: when the baby is hungry, she is able to provide food and when the baby is tired, she is able to decide on interventions so that the baby goes to sleep. The mother may interact in a way that she supports a tired baby by carrying or swaddling.²⁹ The baby may react with a longer sleeping phase that also allows the mother to rest. After this relaxing phase for both the mother and her baby, the baby may receive a feed again when it wakes up hungry.

The second mother-baby interaction process identified relates to the provision of frequent short feeds and a predominant maternal interpretation of baby's crying as a sign of hunger. This interpretation considers that a short and less satisfying feed every one to two hours causes a short-term satisfaction for a baby but no long-term satisfaction. The baby may then sleep a little but awaken quickly because it again becomes hungry. The next meal again is short because the child may only be a little hungry and cannot feed for longer. Due to the

high frequency of feeding in this mother-baby interaction process, the baby has no long sleeping phases because it is simply not possible to sleep for a long time when breastfeeding occurs every two hours. This interpretation includes a predominant maternal interpretation of baby's crying as a sign of hunger. This means that possible tiredness of a baby might be overlooked by the mother as a potential cause of crying. Such crying is therefore interpreted as hunger on the part of the baby. The baby may become irritable and the mother may become exhausted. Nights may also be tiring because this mother-baby interaction process continues during the day and the night. This mother-baby interaction process means that a child requires maternal care every two hours or more often when it is crying. Decreased maternal rest between the feeds accompanies a maternal lack of sleep. This might result in maternal exhaustion and the development of subsequent infant sleeping problems that may last for several years.^{24,30} The mother-baby interaction process that relates to the provision of frequent short feeds and predominant maternal interpretation of baby's crying as a sign of hunger may provide an understanding of how the first three months can be experienced as a challenging experience of life as identified previously. Mothers like Alice or Elke in this research reported a high feeding frequency that was associated with infant crying and maternal sleep loss. In summary, this research has resulted in a deep and detailed understanding of the maternal emotions of 'being needed', 'being in need' and 'emotional balance and conflicting emotions'.

4. Limitations of the study

It is appreciated that if others had undertaken a study with the same aim, the understandings developed may have differed. This is explained by Gadamer¹² as the process of gaining understanding is influenced by the different pre-understanding everyone has, all of whom have been influenced by different aspects of language and tradition. The evaluation of the timeframe of the first three months of life occurred completely retrospectively in this study. All interviews were conducted after the first three months of the postnatal period had passed. This reflected one central thought of Gadamer¹² that the retrospective consideration of life events complements the development of understanding, because it allows for earlier self-reflection processes to have taken place. However, it is also a limitation that the research included no data that emerged directly during the first three months of life for the babies of the mothers interviewed as this might have provided more detailed information. A further limitation relates to the theoretical framework of Gadamer's philosophical hermeneutic as findings can never be considered definitive. They are findings that reflect the current and subjective understanding at the point of having completed the research. This means that the findings are of a dynamic nature and reflect what the participants felt at a specific time in their lives.

According to Gadamer¹² all understanding is a continuous development. This means that both the understanding of the participants and the understanding of the authors are part of an ongoing process and may change over time.

5. Conclusion and recommendations

The authors conclude that a spectrum of maternal emotions, maternal uncertainties and maternal needs exists in the first three months of the postnatal period. Meaningful new knowledge has been gained from this research because the mothers themselves have been listened to in this study. Mothers as participants of this study shared that the postnatal period can be experienced as a fulfilling or challenging

emotional experience of life. The authors conclude, based on the findings of this research, that the developmental process of the infant circadian rhythm is complex and interacts with maternal emotions during the first three months of the postnatal period. It is recommended that consideration should be given to such insights, while realising that sufficient remuneration must accompany the provision of midwifery care in the postnatal period.

Ethical statement

Ethical approval was granted by the Research Ethics Committee of Glasgow Caledonian University (HLS id: HLS12/06). Approval was gained the 6th December 2013. Prior to publication we considered the recommended Committee of Publication Ethics guidelines.¹

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