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Thesis

Master in Sexual, reproductive and perinatal health

Parent's experiences of feeding their preterm infant in Neonatal Units in Sweden.

Ethnographic design

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ABSTRACT

Introduction: Studies have shown that having a preterm infant may cause stress and powerlessness for parents. It is important to support parents around the feeding situation, and that the Neonatal Intensive Care Unit (NICU) has appropriate space and place to help the family to bond to each other. For the healthcare professionals it is important to promote skin-to-skin contact and breastfeeding; particularly for preterm infants. There are many studies on parent's experiences of NICUs and a few studies on parent's experiences of feeding their infant in the NICU.

Objective: The objective of this study was to explore parents experiences of feeding their infant in the NICU.

Design: The study was conducted using an ethnographic design.

Results: A global theme of 'The journey in feeding' was developed from four organising themes: 'Ways of infant feeding'; 'Environmental influences'; 'Relationships' and 'Emotional factors'. These themes illustrate the challenges mothers reported with different methods of feeding. The environment had a big impact on parent's experiences of infant feeding. Some mothers felt that breastfeeding seemed unnatural because their infant was so tiny but breastfeeding and skin-to-skin contact helped them to bond to their infant. The mothers thought it was difficult to keep up with the milk production by only pumping. Routines were not inviting parents to find their own rhythm. They also felt stressed about the weighing. Healthcare professionals had positive and negative influences on the parents.

Conclusions: This study demonstrates that while all parents expressed the wish to breastfeed, their 'journey in feeding' was highly influenced by method of feeding, environmental, relational and emotional factors. The general focus upon routines and assessing milk intake generated anxiety and reduced relationality. Midwives and neonatal nurses need to ensure that they emphasise and support the relational aspects of parenting and avoid over-emphasising milk intake and associated progress of the infant

Keywords: Experience, Parents, Factors, Bonding, Neonatal Care

SAMMANFATTNING

Introduktion: Studier har visat att få ett prematurt barn kan orsaka stress och maktlöshet hos föräldrar. Det är viktigt att stödja föräldrarna runt matsituationen av barnet och att neonatalavdelningen har tillräckligt med plats för att hjälpa familjerna att knyta an till varandra. För sjukvårdspersonalen är det viktigt att främja hud-mot-hud och amning, särskilt för tidigt födda spädbarn. Det finns många studier om föräldrars upplevelser om neonatalavdelningar men få studier om föräldrars upplevelser av att mata sitt barn på neonatalavdelning.

Syfte: Syftet med denna studie var att undersöka upplevelserna föräldrar hade av att mata sina barn på neonatalavdelning.

Design: Studien genomfördes med en etnografisk metod.

Resultat: Ett globalt tema av 'Matresan' utvecklades från fyra olika organisationsteman: 'Olika sätt att mata barnet', 'Miljöns påverkan', 'Relationer' och 'Känslomässiga faktorer'. Dessa teman visar på de olika utmaningar föräldrarna upplevde vid de olika matsituationerna av barnet. Miljön hade en stor inverkan på föräldrarnas upplevelser av matsituationerna hos barnen. En del mammor upplevde amning som onaturligt eftersom deras barn var så små men att amning och hud-mot-hud hjälpte dem att knyta an till deras barn. Mammorna tyckte att det var svårt att hålla igång mjölkproduktionen genom att endast pumpa. Rutinerna på avdelningen hjälpte inte föräldrarna att hitta sin egen rytm. De kände sig även stressade av att väga barnet. Sjukvårdspersonalen hade både positiv och negativ inverkan på föräldrarna.

Slutsats: Den här studien visar att trots att alla föräldrar önskade att amma så påverkades matresan av val av mat-metod, miljön, relations- och känslomässiga faktorer. Det generella fokuset på rutiner och intaget av mängden bröstmjölk genererade i ångest och minskade anknytningen. Barnmorskor och neonatalsjuksköterskor måste lägga störst fokus på att stödja föräldraskapet och försöka att inte se bröstmjölksintaget som den stora faktorn till framsteg.

Nyckelord: Upplevelser, Föräldrar, Faktorer, Anknytning, Neonatalvård

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ABBREVIATIONS

DHM

Donor Human Milk

NICU

Neonatal Intensive Care Unit

WHO

World Health Organisation

INTRODUCTION

Definitions

According to the World Health Organisation (WHO) (2015) there are approximately 15 million infants every year who are born preterm around the world. The leading cause of death in the world for children under the age of five are complications of a preterm birth. The WHO definition of preterm is an infant who is born alive before 37 completed weeks of pregnancy (WHO, 2015). A NICU is a Neonatal Intensive Care Unit, an intensive care unit designed for premature and ill newborn infants. The healthcare professionals who works there are, assistant nurse, paediatric nurse, midwives and paediatrician.

Being a preterm parent

When a woman becomes pregnant, a process of becoming a mother starts. This process is biological, psychological, emotional, and all of this is a preparation for motherhood (Flacking, 2007; Habib & Lancaster, 2009). Going into labour prematurely can make the mother feel a sense of powerlessness and initial shock (Fegran, Helseth & Fagermoen, 2008; Finlayson, Dixon, Smith, Dykes & Flacking, 2014). Being withheld the normal relationship with their infant after the birth, all of the mothers expressed the importance of being involved in their infant's care (Fegran et al., 2008). If the mother felt tired after a difficult childbirth she also felt guilty for not taking care of her own infant (Wigert, Johansson, Berg & Hellström, 2006). During the separation several mothers experienced a feeling of not being a mother. Intellectually they knew that they were mothers, but the feeling was denied them (Finlayson et al., 2014; Jackson, Ternstedt & Schollin 2003; Obeidat, Bond, Clark-Callister 2009; Wigert et al., 2006).

Experience during NICU

As the caregivers were experts, the new mother may felt unwanted (Jackson et al., 2003; Wigert et al., 2006). Exclusion from their infant's care contributed to creating uncertainty and distress (Fegran et al., 2008). The important impact of the infant's well-being related to the parents emotional well-being and how the infant's well-being moderates parental stress through the NICU journey (Brandon et al., 2011; Jackson et al., 2003; Stacey, Osborn & Salkovskis, 2015; Wigert et al., 2006). The mother's need for communication, information,

trust and the verbal information was an important part of the interaction and when continuous and consistent information existed, the mother's confidence for the healthcare professionals established (Obeidat, Bond & Clark-Callister, 2009; Stacey et al., 2015; Wigert et al., 2006). The mothers felt alienated and incapable in their relations with the healthcare professionals when they were excluded, and this affected their ability to form an important bond with their baby. A common difficulty was the different ways of doing things and the various information from the healthcare professional (Finlayson et al., 2014; Stacey et al., 2015; Swift & Scholten, 2009). The health care professionals also have an important task to support parents in bonding with their infant, which is the primary goal (Fegran et al., 2008; Flacking & Dykes, 2013; Nyqvist et al., 2010).

The impact of the environment

In the NICU it was often impossible to find a place to be alone with their infant and bond with them (Finlayson et al., 2014; Flacking & Dykes, 2013; Wigert et al., 2006). Alves, Rodrigues, Sílvia, Barros & Silva (2013) reported about the lack of privacy and the structured feeding routines as something that lowered breastfeeding. Stacey et al. (2015) and Telch et al. (2011) found that the new buildings with single family rooms, seemed to establish space for the parents to focus on their parenting and bonding with their infant. The quality of their experience also included the need for privacy. Domanico, Davis, Coleman and Davis (2011) noticed that earlier full enteral nutrition and breastfeeding rates were higher when noise levels were lower in the new buildings. Flacking et al. (2012) found that the most important deliberation was paying attention to developing an organizational culture that supports the formation of parent-infant relationship and the physical and emotional needs of parents and infants. Flacking and Dykes (2013) found that in the NICU the feeding is one of the most frequent activities around the infant. That special moment between mother and infant is very important, because they are then linked to each other and can create a stronger bond.

Feeding a preterm infant

Infants below 33-35 weeks gestational are often unable to coordinate sucking, swallowing and breathing. All of this is a maturational process that will take time. Therefore the infants are usually fed through a tube inserted into the stomach through the mouth or the nose (Comrie &

Helm, 1997; Flacking 2007). With early skin-to skin contact, support from the healthcare professionals, a good position, observing early signs from the infant and keeping the physical environment calm and un-disturbing, breastfeeding can have a lot of potential to work out just fine (Flacking 2007; Flacking & Dykes, 2013). Skin-to skin contact is also an effective way to empower mothers to become familiar with their infants, strengthen their mothering and increase feelings of parental competence. It is also an important intervention to promote breastfeeding (Flacking, 2007; Nyqvist et al., 2010; Uvnäs-Moberg & Eriksson, 1996). Swift and Scholten (2009) discovered that the parents thought of the infant as tiny and that it was awful to see the infant with the tube. They hoped their infants feeding would progress stepwise from tube feeding into bottle or breastfeeding resulting in gaining weight. This process led to a parental frustration and a big focus on the infant's weight gain. The frustration and stress led two mothers to giving up breastfeeding. They saw breastfeeding as something natural and when it didn't work out they saw it as a complete failure (Swift & Scholten, 2009). In a study made by Esquerria-Zwiers et al. (in press), the mothers had a strong desire to be the only provider of breastmilk for their infant. They didn't want their infant receiving "somebody else's milk". But in the study it showed that all parents chose donor human milk (DHM) for their infant instead of formula when their own amount of breastmilk was not enough. The parents actually felt empowered in that they were making the right decision for their infant of consenting for DHM. Alves et al. (2013) and Swift and Scholten (2009) found that the majority of mothers experienced pumping as difficult, time consuming and they also felt tired. They felt that the pump-machine were horrible and gave them a feeling of being a cow. There were also concern about inadequate milk supply. The parents saw bottle-feeding as something nice (Alves et al., 2013; Swift & Scholten 2009).

Rationale

Studies have shown that having a preterm infant involves a stress and powerlessness for the parents and the importance of being involved in their infants care. When parents therefore, were excluded from the care of their infant they experienced an insecurity and an increased stress. It is important that the NICU's have the right space and place that helps the family to feel closer to each other, and also begin to bond. There are many studies on parent's

experiences in the NICU and some studies on parents experience in infant feeding. However, limited studies have explored parent's experiences in feeding their infant in the NICU.

Objective

The objective of this study was to explore parents experiences of feeding their infant in the NICU.

METHODS

Study design

The study was conducted using an ethnographic design. This methodology provides rich descriptions, formulates understanding, and attempts to explain the cultural knowledge of a specific group of people. Ethnography means trying to understand the behaviour and get to know the culture by spending time in the setting, observing, and getting to know people in their everyday pursuits (Olsson & Sörensen, 2011).

Setting

The research was conducted in two neonatal units in Sweden in 2009-2010, five months in total. It takes place 'in the field', so the observations and experiences are made in their actual context (Granskär & Höglund-Nielsen, 2012).

Study population

The neonatal units were selected through field studies and they represented various levels of intensive care, family-centred-care, and various care routines related to breastfeeding. The inclusion criteria for participation were that the baby was born preterm. Those who experienced occasional or prolonged medical and mental severe illness, parents who did not speak the languages and those who did not want to participate were excluded from the study. In the sub-study the gestational age of the babies varied from 29-35 weeks, there were two co-habiting parents in all cases except for one where the mother was single. Half of the parents had their first infant while the other half had their second infant.

Ethical considerations have been taken into account regarding participant informed consent, privacy and confidentiality. All participants were given full information about the study and asked if they wanted to participate before every observation or interviews. It is important that the participants are well informed about the project and have knowledge of what participation means. The main study has been ethically approved in Sweden by The Regional Ethical Review Board, Uppsala (Dnr 2009/060). The authors of this study have no opinion to put on own values that will affect the result and hence will implement the study on an honest basis (Olsson & Sörensen, 2011).

Data collection

Observations was made by one researcher during day and night shift over a period of five months in Sweden (2009-2010). The observations were made when the researcher was sitting in those rooms where mothers, fathers and their infants were. During the observations, field notes were taken. The observations were supplemented by interviews (short and informal conversations) and related to what had been observed, with healthcare professionals, mothers, fathers and infants during the observation. All of this was conducted as one transcript. An ethnographic approach was selected as it enabled the researcher to see and hear what was happening. When doing ethnographic observations, the level of participation is of interest. Therefore a balance of observations and participant were maintained. The researcher observed, but when relevant also answered questions or assisting the mothers by example fetching things. The initial stages of ethnographic observations was used by a nine-dimension framework for data collection: 1) Space: physical space. 2) Actor: people involved. 3) Activity: set of related acts people do. 4) Object: physical things that are present. 5) Act: single actions people do. 6) Event: set of related activities that people carry out. 7) Time: sequencing that takes place over time. 8) Goal: things people are trying to accomplish. 9) Feeling: emotions felt and expressed.

For this paper six transcripts were selected from the main study (52 transcripts), to explore in-depth the feeding process in parents of preterm infants at neonatal units in Sweden. These six transcripts represents a wide variation (civil state, parity, age, week of birth, single birth/ twin

birth, feeding method) and there are four transcripts from one unit and two transcripts from the other unit.

Data analysis

Thematic networks analysis was used to organize the qualitative data into themes (Attride-Stirling, 2009). The method is used to explore the understanding of an issue rather than an explanation of a problem or relationship between variables. The procedure of thematic analysis is simply a technique for breaking up text, and finding within it explicit rationalizations and their implicit signification. It is a tool in analysis, not the analysis itself. The material was read several times to get an overall understanding. In the first step of analyzing thematic networks there was a breakdown of text, to code the material, identify themes and construct thematic networks. The second stage involved exploring the text, to describe and explore the thematic networks and then summarize them as basic, organising and a global theme (see figure 1 below). The last stage involved integration of exploring, to interpret patterns of the thematic networks. Every step in this method interpretation was used to reach a new more abstract level of analysis (Attride-Stirling, 2009).

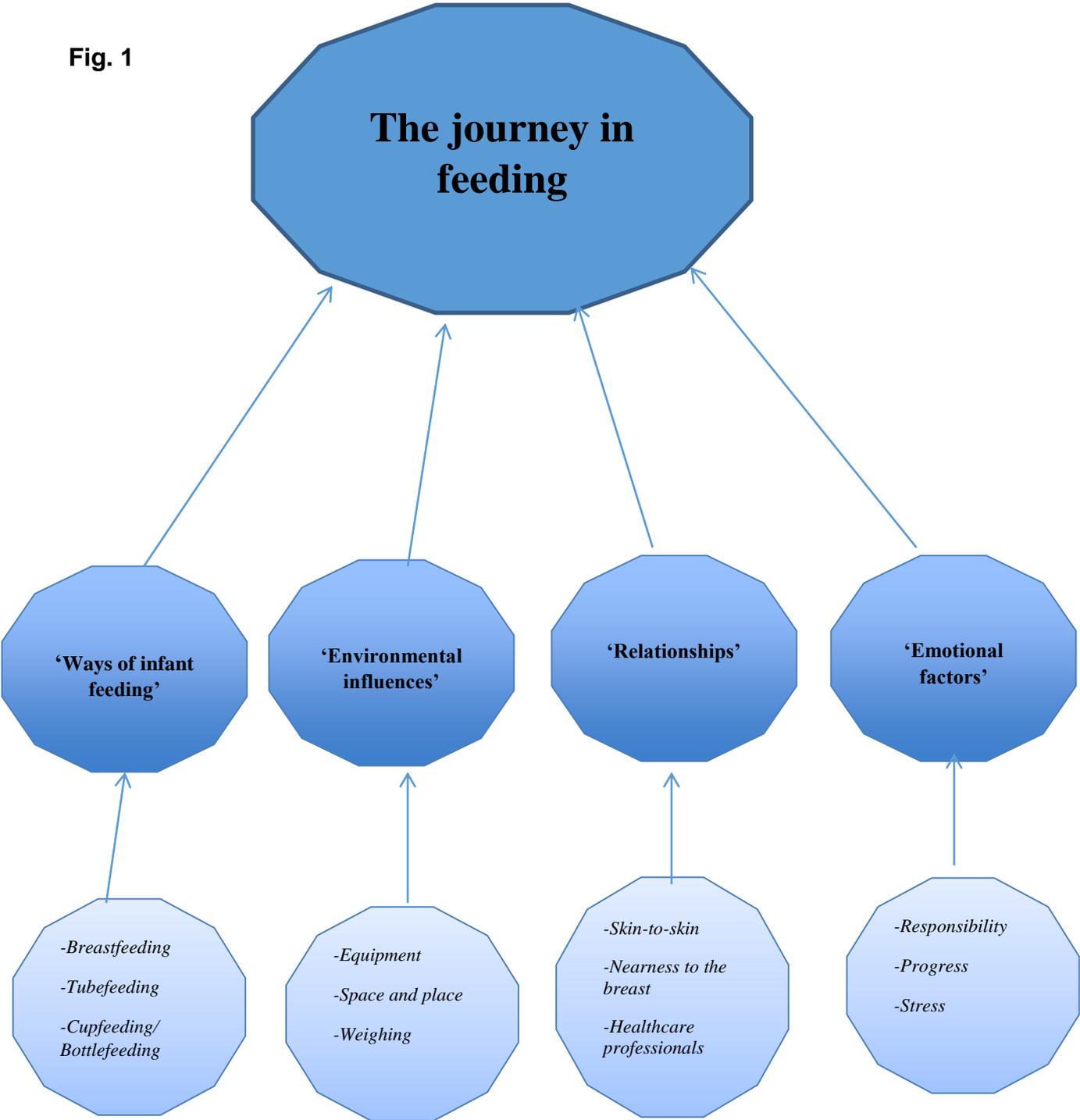
Dissemination

This sub-study will be written as an article for publication in a relevant peer reviewed journal.

RESULTS

A global theme of **The journey in feeding** was developed from four organising themes: **'Ways of infant feeding'**; **'Environmental influences'**; **'Relationships'** and **'Emotional factors'**. (see figure 1).

Fig. 1



‘Ways of infant feeding’

The organising theme, ‘Ways of infant feeding’ was developed from four basic themes, *Breastfeeding; Tubefeeding; Cupfeeding/Bottlefeeding* and *Pumping*.

Breastfeeding

All mothers had the ambition to breastfeed but there was a tendency to be more concerned about milk consumption than just having the baby close at the breast, for example one mother defined breastfeeding only as when the infant was getting milk from the breast.

"Unfortunately I have to say it's when they get breast milk."

Some mothers felt breastfeeding seemed unnatural:

“Now when she is lying by the breast it doesn't feel natural. It feels weird to have her, who is so tiny, by the breast.”

Other mothers emphasised the special meaning of breastfeeding:

"You bond with the infant, then I felt that I could give something to her that no one else could."

"It feels good in the mother's heart."

The parents described the importance of being aware of the infant's immaturity, signs (behavioural cues), and listening to their own intuition. After experiencing a good breastfeeding occasion, the mothers felt that it was easier to see the infant's signs:

"She gets fussy, sucks at everything, clothes and..."

Some mothers felt that it would be good to lower the ambition to success.

"It would be great to just be able to relax and to not tense so the milk will come easier."

Tubefeeding

Several mothers experienced tube feeding as a problem because the infant's stomach never became empty before the next meal:

“He sleeps all the time and doesn't want to breastfeed. And when he gets food all the time he doesn't even get hungry.”

Most mothers still wanted to keep the tube as a security when the infants didn't appear to eat enough on the breast.

"No, now we put back the tube so that we know that he is getting enough food."

A mother experienced that when they had removed the tube and the infant breastfeed the first time without it, he appeared pleased.

"He looked big and really seemed to enjoy it."

The tube feeding tended to be experienced as complicated when combined with breastfeeding:

"Breastfeeding is not a problem, but when you also should tube feed - there are too many steps."

Some parents referred to discomfort of the tube:

"When she is having trouble with her stomach she pulls herself together and the mouth looks sad and she misses the breast and then she gets really angry."

Cupfeeding/Bottlefeeding

The parents tended to experience cup feeding as difficult and time consuming:

"Cupping took so much negative time."

The parents were not against feeding their infants with bottles if not breastfeeding did not work out:

"You see how their lips enclose the bottle and it looks so nice."

However, as one mother commented the healthcare professionals were negative about bottle feeding:

"I would have liked to try bottle feeding. But I understand that the healthcare professionals are against it."

Pumping

A mother felt that after the baby was born no one asked if she wanted to breastfeed or pump.

"Pump is something you should do!"

One mother commented on the difficulty with pumping milk out. She had thought it was a reflex that she had milk, but she just couldn't seem to release it:

"It came more tears than breastmilk."

Another mother experienced herself as a 'milk-machine'. The breasts were ulcerated and very swollen, so she couldn't have her baby on her breast.

"Then I felt, 'No it's not worth it!' I wanted to quit the pumping because I rather want to be with him instead of being a 'milk-machine'."

Several mothers said that it was difficult to keep up the milk production over time, by only pumping. They felt that it had a negative emotional effect but having saved milk decreased the stress on pumping.

"I have a lot of saved milk and that's very nice. It's good to know that you have saved milk otherwise it would have been more stressful."

'Environmental influences'

The organising theme, 'Environmental influences', is underpinned by the basic themes of: *Equipment; Space and place* and *Weighing*.

The advanced equipment made the parents feel helpless. The less equipment the infant had, the more responsible the parents felt for their own infant. Noise from the equipment, other parents and healthcare professionals disrupted breastfeeding and sleep:

"It's so hard. It's also about the physical environment. And I can't do anything about that."

Space mattered; being in a single room made the parents more relaxed and attuned to their infant.

"It's amazing. Such a privilege to have them like this so we can create a relation."

After moving to a room where there were several infants, one mother found that it was difficult to find a place to breastfeed; it was crowded and there was not even a chair in the room to sit on.

“It doesn't feel natural to breastfeed in an environment like this. There are so many people around all the time.”

The procedure of weighing the infant was stressful for the parents. They did not trust their own intuition, instead they only looked at the scale and saw the weight as a confirmation if the infant had received any milk or not. The infant's weight chart had a central role for both parents and healthcare professionals, it was the first thing everyone looked at when entering the room.

“It's this weight fixation. You don't want to starve your baby.”

‘Relationships’

The organising theme, ‘Relationships’, is underpinned by the basic themes of: *skin to skin; nearness to the breast; healthcare professionals* and *time*.

The parents were positive that they could have their infants near so often and therefore be able to create a relationship. A mother noticed that the infant's well being improved when she had her infant at the breast:

“You can see the oxygen level and pulse if he is ok. He can have a low oxygen level and pulse and when you lay him by the breast he gets great oxygen. It really shows that it's something that he likes.”

Some parents experienced that the healthcare professionals worked with a greater focus on the parents doing more and more by themselves.

"They are aware, they pushed for more - that you should dare to try."

Some parents thought that different healthcare professionals had different opinions that made them doubtful:

"Then it falls apart, one think in one way and another in a different way."

However, most parents felt that the healthcare professional gave great support which lead to a feeling of security.

“They are so professional and talented!”

The healthcare professional urged the parents to find their own rhythm, but the routines of the unit were not inviting to rely on their own intuition and to establish their own rhythm. One mother described how satisfied she was after finding a good rhythm.

“I’m not tube feeding that much and she is gaining weight.

Parents felt ruled by the clock, timing of feed intervals and routines:

“You are in a hurry and you're behind. This tight timetable takes energy from the overall presence. You do not have time to carry and to comfort. Now we need to start feeding. We are one quarter late.”

‘Emotional factors’

The organising theme, ‘Emotional factors’, is underpinned by the basic themes of: *responsibility; progress and stress.*

Several mothers didn’t want to give their infant donated milk or infant formula, they then experienced themselves as worse mothers.

"You feel as a mother that it's my infant and I want him to get my milk, not another mother's milk."

There was a desire to see the infant progress onto the next stage(s):

“It feels good to put their own clothes on them, a step on the way home. The next step is when you remove the electrodes.”

Several mothers referred to a big focus on the result of the breastfeeding and therefore the mothers always wanted to make some progress:

“Each failed attempt is really a setback.”

There was a sense of being assessed as a mother which was stressful:

“It feels like I’m being judged for how I’m as a mother, what I can perform. They always start to ask about the infant and then it's about what kind of choice you make as a mother.”

DISCUSSION

This study explored parents experiences of feeding their infant in the NICU. All parents wanted to breastfeed their infant but how they experienced the feeding situation depended on method of feeding, environmental influences, relational and emotional factors.

Some mothers felt that breastfeeding seemed unnatural as the infant was so tiny, a finding supported by Swift and Scholten (2009). The special meaning of breastfeeding, and bonding with their infant found in our study is also reported by Fegran et al. (2008) and Nyqvist et al. (2010). Alves et al. (2013) and Swift & Scholten (2009) discovered that parents saw bottlefeeding as a nice moment, which we also reported in our study. Several mothers in our study thought it was difficult to keep up with the milk production by only pumping, one mother had a feeling of being a ‘milk-machine’. This mechanistic feeling is also reported by Swift and Scholten (2009). The parents felt more responsible for their infant when there was less equipment and reported that noise from the equipment was disturbing. Other parents and healthcare professional disrupted both breastfeeding and sleep, findings were also reported by Domanico et al. (2011).

Parents experienced that the environment had an impact on the breastfeeding and bonding; in some environments it didn't feel natural to breastfeed. Finlayson et al. (2014); Stacey et al. (2015) and Wigert et al. (2006) also reported that the parents felt a big impact on bonding when the NICU was crowded. Some parents in our study felt it impossible to find a place to be alone and bond with their infant.

Flacking and Dykes (2013) study showed that space and place affected the parents experience, in some cases some parents felt like a visitor to their own infant. In our study

parents also felt very stressed about the weighing. They were focused at the scale instead of listening to their own intuition, findings supported by Swift and Scholten (2009). We found in our study that parents experienced it as positive to have their infants skin-to-skin often and it helped creating a relationship. Fegran et al. (2008) discusses that the parents experienced an exchange of power initiated by the skin-to-skin contact which made them relaxed. Flacking (2007) and Nyqvist et al. (2010) found that skin-to-skin contact helped parents to get more familiar with their infants, strengthen the feeling of parental competence and enhance the success of breastfeeding

Healthcare professionals had positive and negative influences on parents being a great support but also giving conflicting information. Routines were not inviting the parents to find their own rhythm and to rely on their own intuition. This resonates with other studies which revealed that parents needed continuous verbal information from healthcare professionals to establish some trust in them, and the need for communication, verbal information and mutual trust as important aspects of the interaction (Obeidat et al., 2009; Stacey et al., 2015; Wigert et al., 2006).

In our study we found out that parents felt ruled by the clock and timing of feed intervals. They felt like they were always in a hurry and didn't even have time to just carry their infant to comfort. Several mothers felt like worse mothers if they gave their infant DHM or infant formula. Esquerra-Zwiers et al (in press) also found out in their study that mothers was feeling negative about giving their infants DHM and didn't want to give somebody else's milk. However all the parents chose to give a consent to give DHM, because they felt empowered by making the 'right' decision.

Limitations

There are some limitations to conducting research in hospitals. The researcher must be conscious that the hospital is a subculture and, in this case, the researcher had prior experience and knowledge of the NICU setting and may have overlooked important information during observations (Olsson & Sörensen, 2011). The researcher may have affected the findings and analysis because of her pre-knowledge and 10 years of experience from neonatal care. Even if

the prior knowledge from the researcher can be a limitation, we believe that it also can be a strength for the study. Because the researcher can focus on the observations instead of being disrupted by new influences.

Dykes (2006), cited Standing (1998), who referred to being that one who is presenting the perspectives of others as one challenge in research. The researcher has the power to decide which part of the data they will present. In our study, the data was already collected. It may be a limitation that we did not experience the observations in real.

The authors of this study have some pre knowledge and experiences and hence cannot remain completely neutral and objective although we did our best to present the result in a trustworthiness way. Lincoln and Guba (1985) state that trustworthiness is to include credibility, and transferability. In our study, the first step in our analysis were conducted individually to find the organizing themes. The interpretations were discussed and the findings were compared, so the participants were represented fairly in the result. This led to an increased credibility. The transferability has been taken into account. The material was collected a few years ago; it needs to be considered that policies and practices are dynamic and changing according to research evidence. If this study would be conducted again some of the findings may therefore be different.

Ethical issues in this study could be factors such as having a researcher around and near you during this complex and sometimes hard situation. Being observed and examined may affect the participant's feelings and behavior. The researcher had to be sensitive to the participants because observation and researcher can influence participants behavior. Therefore also a strength to this study was, that the researcher spent a lot of time in the NICU which may have helped the participants to become less concerned about the observer's presence.

Conclusion

This study demonstrates that while all parents expressed the wish to breastfeed, their 'journey in feeding' was highly influenced by method of feeding, environmental, relational and emotional factors. The general focus upon routines and assessing milk intake generated anxiety and tended to reduce the relational aspect of the NICU experience. Healthcare professionals need to ensure that they emphasise and support the relational aspects of parenting and avoid over-emphasising milk intake and associated progress of the infant. In addition, attention needs to be placed up optimizing the geographical layout and ethos of the actual place and space within which NICU care is provided.

Clinical implications for practice

The midwife's competence includes sexual, reproductive and perinatal health. As midwives you need to promote breastfeeding because of the many benefits of nursing. The study has a connection to perinatal health though it highlights breastfeeding and other feeding situation. It gives increased knowledge about how important breastfeeding is. This study can be used for all the healthcare professionals in the NICU to illuminate parent's experiences of the feeding situation with their infants. The study comprises ethnographic, comparative and process oriented research and insight into the influence of culture on the process of feeding. The findings in the study may be utilised to generate hypotheses on how to make improvements in neonatal care and also on how to make the feeding situation more pleasurable for parents and their infants. It would be interesting to study a further range of NICUs with differing spatial designs and varying emphasis on family-centered-care and compare how these factors affect the parent's experiences related to feeding their infant.

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CONFLICTS OF INTERESTS AND FUNDING

No conflicts of interest

APPENDIX 1 MATRIX

Title	Author	Journal	Population	Design, setting	Conclusion
Parents views on factors that helps or hinder breast milk supply in neonatal care units: Systematic review.	Alves, E., Rodrigues, C., Sílvia, F., Barros, H., & Silva, S.	Arch Dis Child Fetal Neonatal Ed	Seven studies.	A systematic review	Although parents' perspectives are grounded on individual child-focused experiences, their emphasis on learning and motivation guided by short term goals opens room to the collective intervention of experts. This may facilitate the engagement of mothers, fathers and health professionals on family-centred care.
Emotional Responses of Mothers of Late-Preterm and Term infants.	Brandon, D. H., Tully, K.P., Silvia, S. G., Malcom, W. F., Murtha, A.P., Turner, B. S., & Holditch-Davis, D.	J Obstet Gynecol Neonatal Nurs.	Sixty mothers.	Open Semi-structured maternal interviews conducted in the hospital following birth and by phone at one month postpartum.	Mothers of late-preterm infants have greater emotional distress than mothers of term infants for at least one month after delivery. It may not be a single event that leads to different distress levels in mothers of late-preterm and full-term infants but the interaction of multiple alterations in the labour and delivery process and the poorer-than expected infant health outcomes.
Common feeding problems in the intensive care nursery: Maturation, organization, evaluation and management strategies	Comrie, J.D., & Helm, J. M.	Seminars in Speech and Language	Current literature on feeding and swallowing of the premature.	A review.	Common problems seen in this population are described along with the wide range of management strategies to consider. Whenever intervening with this fragile population a team approach must be used; the individual needs and behavioral cues of the infant must be read, respected, and responded to, while ensuring that families play an integral part of the process.

Documenting the NICU design dilemma: Comparative patient progress in open-ward and single family room units.	Domanico, R., Davis, D. K., Coleman, F., & Davis, B. O.	Journal of Perinatology	Two contrasting NICU designs.	Prospective study.	This study showed the single family room to be more conducive to family-centered care, and to enhance infant medical progress and breastfeeding success over that of an open ward.
"It's Somebody Else's Milk": Unraveling the Tension in Mothers of Preterm Infants Who Provide Consent for Pasteurized Donor Human Milk	Esquerra-Zwiers, A., Rossman, B., Meier, P., Engstrom, J., Janes, J., & Patel, A	Journal of lactation	twenty mothers	Qualitative, descriptive study with In-depth semistructured interviews	The experiences of these mothers reflect the importance of approaching mothers for consent only when DHM is needed, respecting mothers' beliefs and values about DHM, and providing help in mediating any tension with regard to their infants receiving "somebody else's milk."
A comparison of mothers' and fathers' experiences of the attachment process in a neonatal intensive care unit	Fegran, L., Fagermoen, M. S., & Helseth, S.	Journal of Clinical Nursing	Twelve parents.	Descriptive with a hermeneutic approach based on semi-structured interviews.	Comparing parents' experiences of the attachment process within the first day after a premature birth reveals a striking contrast between the mother's' experience of surrealism and the father's ability to be involved immediately after birth.
Mothers' perceptions of family centred care in neonatal intensive care units	Finlayson, K., Dixon, A., Smith, C., Dykes, F., & Flacking, R.	Sexual & Reproductive Healthcare	Twelve mothers.	Qualitative experiences were elicited using interviews.	Mothers experienced a state of liminality and were acutely sensitive to power struggles, awkward relationships and inconsistencies in care. To try to maintain their equilibrium and protect their baby they formed deferential relationships with health professionals and remained in a state of anxious surveillance.

Breastfeeding and becoming a mother: Influences and Experiences of Mothers of Preterm Infants	Flacking, R.	Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine	Twentyfive mothers.	In-depth interviews	This thesis shows that improvements in the NU environment and the caring paradigm are called for. Furthermore, as socioeconomic status clearly has an impact on breastfeeding duration, increased equity in health care in accordance with the individual's' needs must be sought, where resources are allocated to ensure fulfilment of needs in more vulnerable mothers and infants.
Closeness and separation in neonatal intensive care.	Flacking, R., Lehtonen, L., Thomson, G., Axelin, A., Ahlqvist, S., Hall-Moran, V., ... Dykes, F.	Acta Pædiatrica		A review.	Culturally sensitive care practices, procedures and the physical environment need to be considered to facilitate parent-infant closeness, such as through early and prolonged skin-to-skin contact, family-centred care, increased visiting hours, family rooms and optimization of the space on the units.
'Being in a womb' or 'playing musical chairs': the impact of place and space on infant feeding in NICUs.	Flacking, R., & Dykes, F	BMC Pregnancy & childbirth	Fifty two mothers, nineteen fathers and 102 staff.	Ethnographic approach and a grounded theory approach was utilised throughout data collection and analysis.	This study illustrates the importance of spatial configuration of NICUs on parental experiences, parent-infant attunement, infant feeding practices and ways and degrees of socialising with other parents. Given the impact of this it seems crucial that NICU design and reconfigurations take considerable account of the types of setting that maximise parent-infant contact and closeness. The configuration of place and space also appears to influence the extent to which an environment is experienced as institutionalised by parents and staff.

Changes in identity and paternal-foetal attachment across a first pregnancy.	Habib, C., & Lancaster, S.	Journal of Reproductive and Infant Psychology	Seventy-eight fathers.	Measures of the antenatal attachment scale.	There was no change in the identity measures. In contrast, paternal foetal attachment significantly increased with the imminent birth. Regression analyses supported the hypothesis that paternal foetal attachment would be predicted by father identity.
From alienation to familiarity: Experiences of mothers and fathers of preterm infants.	Jackson, K., Ternstedt, B-M., & Schollin, J.	Journal of Advanced Nursing	Seven parents.	Interviewed and analysed using a phenomenological method.	The structure of the phenomenon of parenthood was formed by the integration of the syntheses of alienation, responsibility, confidence and familiarity. The structure seems to be based on the parents' expectations of the parental role, the infant's health condition and the health care environment.
State of the art and recommendations. Kangaroo mother care: Application in hightech environment.	Nyqvist, K. H., Anderson, G. C., Bergman, N., Cattaneo, A., Charpak, N., Davanzo, R., ... Widström, A. M.	Acta Pædiatrica		A literature review.	Implementation of the original KMC method, with continuous skin-to-skin contact whenever possible, is recommended for application in high-tech environments, although scientific evaluation should continue.

The Parental Experiences of Having an Infant in the Newborn Intensive Care Unit	Obeidat, H. M., Bond, E. A., & Clark-Callister, L.	The Journal of Perinatal Education	Fourteen qualitative articles.	A literature review.	Parents with an infant in the NICU experienced depression, anxiety, stress and loss of control. The feelings of inclusion and exclusion related to the provision of the health care. Nursing interventions that promote positive psychosocial outcomes are needed to decrease parental experience of bad feelings. interventions need to focus on family-centered and developmentally supportive care.
Life is a rollercoaster... What helps parents cope with the Neonatal Intensive Care Unit (NICU)?	Stacey, S., Osborn, M., & Salkovskis, P.	Journal of Neonatal Nursing	Nine parents represented seven families.	Semi-structured interviews.	The main theme described the Emotional Rollercoaster of NICU. They found factors which helped or hindered coping. None of the factors alone explain positive coping. the findings gave useful information about optimal NICU conditions to parental promote psychosocial well being.
Not feeding, not coming home: Parental Experiences of infant feeding difficulties and family relationships in a neonatal unit	Swift, M. C., & Scholten, I.	Journal of Clinical Nursing	Nine parents.	A qualitative phenomenological research design.	The main theme linking parental experiences was the desire to take the baby home. The feeding difficulty prevented this from occurring, shifting the feeding interaction from one of relationship development to one of weight gain. This research identifies trigger points that may be acted on to encourage positive parent-child feeding interactions.
Infection Acquisition Following Intensive Care Unit Room Privatization	Teltch, D. Y., Hanley, J., Loo, V., Goldberg, P., Gursa, A., & Buckeridge, D.L.	Arch Intern Med	Three hospital information system.	Comparing the rates of acquisition of infectious organisms in an ICU before and after a change from multi-bed to single rooms. A statistical model was used.	Conversion to single rooms can substantially reduce the rate at which patients acquire infectious organisms while in the ICU.

Breastfeeding: Physiological, endocrine and behavioural adaptations caused by oxytocin and local neurogenic activity in the nipple and mammary gland.	Uvnäs-Moberg, K., & Eriksson, M.	Acta Pædiatrica		A review.	It is established that oxytocin, promotes the development of maternal behaviour and also bonding between mother and infant.
Mothers' experiences of having their newborn child in neonatal intensive care unit	Wigert, H., Johansson, R. Berg, M., & Hellström, A-L.	Nordic College of Caring Science	Ten mothers.	A phenomenological hermeneutic interview study	The implication of the result for nurses is that it is important to decrease mother's' experience of exclusion and to increase their feeling of participation when their child is cared for in a NICU. A return visit to the responsible nurse to go through the treatment and experiences should be offered to all parents whose child has been cared for in a NICU.

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