

Striving for sufficient milk to have a healthy late preterm baby: a grounded theory study

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Research

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Abstract

Background

Late preterm infants are at risk for more health problems than full-term infants. They require good nutrition for growth, and breast milk contains valuable nutrients as the valuable golden standard for them. Currently, the population of late preterm infants is increasing as exclusive breastfeeding rates decrease. Hence, this study explored exclusive breastfeeding experiences among Thai first-time mothers of late preterm infants.

Methods

Participants were recruited from the family planning unit of a university hospital in Northern Thailand. A grounded theory study design was used, drawing upon an interview guideline with seventeen first-time mothers who exclusively breastfed their late preterm infants for the first six weeks of life.

Results

“Striving for sufficient milk to have a healthy baby” emerged as the core category. It was defined as a process in which mothers of late preterm infants had to exert great effort toward achieving sufficient milk for their infants. The following three phases supported the core category: preparing for breastfeeding, overcoming the problem of insufficient milk supply, and managing to continue breastfeeding.

Conclusion

Perceived insufficient milk supply in first-time mothers is a threat to achieving exclusive breastfeeding for their late preterm infants, but the will to have a healthy baby makes it happen. Nurse-midwives could apply the management process of exclusive breastfeeding as a guideline in providing support for these mothers throughout the chain of antenatal, intrapartum, and postpartum care.

Trial registration:

Permission to conduct the study was obtained from the Institutional Review Board Committee, Faculty of Nursing and the Faculty of Medicine, Chiang Mai University, # No. 2561-EXP065 and No. 2561-05865.

Background

Late preterm infants (LPIs), defined by birth at 340/7 through 366/7 weeks' gestation, are less physiologically and metabolically mature than term infants. Thus, they are at risk for more health

problems compared to full-term infants [1]. Breast milk is the ideal food for optimal nutrition and growth of preterm [2]. Mothers of preterm infants initially produce breast milk with a higher amount of protein, fat, free amino acids, and sodium than those of full-term infants [3]. Regarding development, breast milk contributes positively to physical, neurological, and psychological development in preterm infants [4].

Although breastfeeding is beneficial for all infants, the exclusive breastfeeding rate is lower than the global need [5]. The WHO set a goal for an exclusive breastfeeding rate in infants of 50% by 2025 [6], including full-term and preterm breastfeeding rates. In Thailand, a target rate of exclusive breastfeeding was also set at 50% in the Twelfth National Health Development Plan [7]. However, Thailand has not reached that target. The exclusive breastfeeding rate in all infants in Thailand was 23.1% [8]. Currently, the rate of preterm birth is still increasing. Currently, the rate of preterm birth is still increasing. Late preterm births accounted for more than 70% of all preterm births [9]. As a consequence, late preterm infants were less likely to be breastfeeding than term infants [10].

Although there are studies on the experiences of mothers of late preterm infants, these studies are conducted in various parous mothers of late preterm infants with complications staying in the NICU. Additionally, the exclusive breastfeeding experiences and the management of successful exclusive breastfeeding in first-time mothers of LPTs have been understudied. According to the literature review, limited academic studies have focused on the exclusive breastfeeding experiences of first-time mothers of late preterm infants (LPTs). Therefore, the aim of this study was to describe exclusive breastfeeding experiences among first-time mothers of late preterm infants and explore how they manage to exclusively breastfeed for their late preterm.

Methods

Research design

A grounded theory approach was used in this study as it enables the researchers to describe how individuals interpret objects and other people into their lives and how this process of interpretation leads to human behavior of a particular experience [11].

Participants and setting

Purposive sampling strategy and theoretical sampling were used in this study. Seventeen first-time mothers of late preterm infants who had delivered at gestational ages of 34-36+6 weeks were eligible for participation with the inclusion criteria: a) 20 years of age or older, b) exclusive breastfeeding, c) vaginal delivery, d) no underlying diseases, e) Thai-speaking, and f) healthy infants without congenital abnormalities and were exclusively breastfed for the first six weeks of life. Enrollment occurred when the participants came for a six-week postpartum checkup at the family planning clinic of a university hospital in the Northern region of Thailand. Once the participants had agreed to participate in the research, the researcher made appointments and set dates, times, and private places for the interviews, depending on the participants' convenience.

Data collection

The first author (RC), who was not an employee of the unit or hospital, collected all data between November 2018 and September 2019. RC had no prior contact or relationships with the research participants prior to initiation of the study. The first author conducted an individual, face-to-face interview with each participant in a private room at the study site using interview guides to obtain intensive experience covering the purposes of the research. After several pro-forma general questions establishing identity, the researcher opened with a broad research question: "Can you tell me about your breastfeeding experience?" During the interviews, the researcher probed more deeply into specific issues the participants had initiated in order to gain deeper and clearer information, using expressions such as "...please tell more about..." and "How?" The researchers used the audio recording to collect the data. The interviews lasted from 30 to 60 minutes. The field notes were made after the interview. The researcher then wrote theoretical memos and transcribed the entire recording. To ensure accuracy after the interviews, each participant received a written summary of her first interview to review. There were no changes requested by participants. All participants were interviewed twice in the interests of thoroughness and academic accuracy. Data were evaluated to decide on the next interviewee until data saturation [12].

Ethical considerations

Permission to conduct the study was obtained from the Institutional Review Board Committee, Faculty of Nursing, and the Faculty of Medicine, Chiang Mai University, # No. 2561-EXP065 and No. 2561-05865. The potential participants were informed about the purpose and process of the research and ensured with oral and written guarantees of anonymity and confidentiality. They were clarified that they could refuse or withdraw from the study at any time. All participants signed the informed consent, including permission to record the interviews. All interview transcripts were kept confidential and anonymous, and only the advisory committee could check for review purposes.

Data analysis

Data collection and analysis were performed simultaneously by using the three steps of data analysis described by Glaser (1998), including a constant comparative method during coding procedure, memos with diagrams, and theoretical sensitivity [12]. Codes were identified in the initial phase by using open, line-by-line, and incident-by-incident coding, followed by selective, focused, and theoretical coding. The topic codes were grouped and created as categories. In the step of memos with diagrams, each category was linked and compared with the other categories to verify the findings and categories to ensure that these categories fit the data by using the constant comparative method. Finally, the researcher used theoretical sensitivity to assist in the formulation of a theory that was specific to the phenomena under study [11].

Trustworthiness of the study

Member checking with participants and peer debriefing confirmed credibility. In addition, the researcher used thick description, purposive sampling and theoretical sampling to judge the potential of transferability. The research team regularly checked in with the participants to ensure that they understood the research process and to address any concerns they might have had. Data analysis was regulated by the committee throughout the research inquiry process. The researcher's conceptualizations were discussed with two grounded theory experts, two experts in breastfeeding, and one expert in preterm infants. Therefore, outsider credibility was strengthened by using these activities. Agreement pertained to the emerging categories and core category. A summary of the emerging themes was given to participants to determine whether the codes and categories matched their perspectives.

Results

Descriptions of participants

The participants were 17 Thai first-time mothers of LPs; 88.24% lived in extended families; 52.94% gave birth at 35-35⁺⁶ weeks of gestation; 70.59% of the infants were transferred to the neonatal ward (NS2 unit), while 29.41% were transferred to the neonatal intensive care unit (NICU); 64.71% of the infants were given breast milk at 6 weeks postpartum by breastfeeding, while 32.29% were given breast milk by bottle feeding. (Table 1)

Data analysis revealed that "Striving for sufficient milk to have a healthy baby" was a process in which the participants had to exert great effort toward achieving or obtaining sufficient milk for their infants. This process is a basic social process where the life journey begins when participants plan to give breast milk to their babies during pregnancy until they achieve breastfeeding, which is continued at 6 weeks during the postpartum period. The process consists of the following three phases: (1) preparing for breastfeeding; (2) overcoming the problem of insufficient milk supply, and (3) managing to continue breastfeeding (Fig.1).

Phase 1: Preparing for breastfeeding

The mothers began preparing for breastfeeding when they got pregnant until they gave preterm birth. As all participants received antenatal care services from the hospital, they received information on the benefits of breastfeeding from professionals, particularly nurses at the antenatal clinics, through group learning sessions. Therefore, all participants made the decision to breastfeed prenatally for enhancing infant growth and immunity and saving money. To prepare for breastfeeding while pregnant, they managed themselves by seeking and receiving information and consuming healthy foods.

Seeking and receiving information

The mothers attempted to obtain the information about breastfeeding as much as they could from various sources, including health care professionals, non-professionals, and internet searching. Most

indicated they sought and received much information through a group learning session on breastfeeding, which was a part of antenatal care.

In antenatal care, the nurses advised watching the VDO with content on breast milk... It recommended that we should give breastfeeding for two years... breastfeeding for 6 months, then adding dietary supplements... The nurses gave information about how much breast milk contains nutrients. (P4)

Although the breastfeeding information provided by health care professionals were accurate, they still described a gap between knowledge and practice.

I obtained very good knowledge...the nurses taught the group how to eat right and how to bring the baby to the breast, but it still didn't seem real...how to hold a baby by learning to hold a doll, but I felt different. (P13)

The mothers sought and received information from friends who breastfed babies. This motivated them to do so. One participant stated:

Friends who have children said breast milk is the best. Suckling milk from the breast promotes bonding. So, I wanted to give breast milk after giving birth. (P9)

In addition, they sought breastfeeding information from an application and the internet in order to obtain additional information they needed.

I loaded an application... since I knew I was pregnant... This application is very good and has many details... It's like having a nurse there all the time. (P1)

Consuming healthy foods

The mothers consumed healthy foods for milk supply, such as dates and ginger, to prepare for lactation during pregnancy. They also drank ginger tea to boost breast milk based on information they received from relatives.

When I was 5 months pregnant, I ate dates sometimes. I ate dried dates or dates boiled with pandan leaves. It is so good for drinking. People in the maternity group on Facebook said that eating dates gave them a lot of milk. (P14)

During pregnancy...I drank ginger tea in the morning every day. My relatives advised me that it helps give a lot of milk. (P4)

Phase 2: Overcoming the problem of insufficient milk supply

Phase 2 started when the mothers gave birth and included the time when the babies were in the hospital. After the mothers gave birth to the preterm infants, they were confronted with separation from their infants and lack of skin-to-skin contact, which were factors involving lactation problems that led to

insufficient milk supply. The mothers overcame the problem of insufficient milk supply by learning and practicing to produce sufficient milk and exerting every effort toward achieving a sufficient milk supply.

Learning and practicing to produce sufficient milk

The mothers got advice on how to produce sufficient milk from nurses by massaging for milk supply and learning to achieve proper breastfeeding positioning and attachment. They learned to compress and massage the breasts and express breast milk for their infants every 2-4 hours. The nurses brought in towels with hot water and placed them on the breasts before breast massage. The mothers tolerated learning to collect milk in a syringe for their babies:

The nurses taught me how to massage my breasts...they would bring me towels soaked in hot water... I tried to express milk. If I was able to get milk, I would collect it in a syringe (P1)

After breast massage, the mothers mentioned that they had a lot of milk within a few days after massaging and expressing breast milk every 2-4 hours.

I expressed milk every 2-3 hours...the more frequently I expressed, the more I got...Once I was discharged, I was able to express milk at about 1 ounce. (P7)

In addition, the mothers learned to achieve proper breastfeeding positioning and attachment at the NS2 ward from pediatric nurses when their infant's conditions were better. The participants spend 30 minutes to one hour practicing every 4 hours on schedule or depending on the nurses:

I practiced positioning my baby at the breast in the NS2...Then they advised me about compressing my breasts and how to hold my baby at times when they could watch ...I practiced for an average of 30 minutes to 1 hour, depending on the nurses. (P15)

The mothers practiced the breastfeeding positions and attachment until they could do it and the babies suckled well. Then they could be discharged from the hospital:

When I knew how to do it, he suckled well. The baby was really good at it. When the baby suckled well, my milk kept flowing...and we were able to go home. (P13)

Exerting every effort toward achieving a sufficient milk supply

The mothers disciplined themselves to breastfeed, even though they had small amounts of milk at first. They woke up to pump milk every night to get sufficient milk. Pumping milk was very painful, but the mothers were able to endure the pain because of love and a wish to have healthy infants:

When there wasn't milk and I was pumped, it hurt a lot until I thought about giving up.... If I was able to endure the pain when my baby was born, why couldn't I be able to take just this? I endure this because I don't want my baby to be hurt or sick. (P8)

It's in a mother's nature to produce milk. It's up to me to have the discipline to get it out... I have to pump, even at night... If I don't wake up to pump milk at night, there won't be enough milk... if I'm not strong... I won't be able to breastfeed successfully. (P4)

The mothers attempted to produce enough milk by breastfeeding frequently. They pumped milk to breastfeed for every feeding. After breastfeeding frequently, they had more milk supply. They felt glad to have sufficient milk for their babies:

My baby has eight feedings a day... I try to pump for every feeding... I try to pump the amount my baby needs for each feeding... I try to pump as much milk as possible, and I don't limit the time... so, I have enough for my baby at each feeding. (P2)

When I pumped more frequently and on time, the milk increased... when I had enough milk, I cried. I was happy that I had enough milk and my baby was healthy. (P4)

While their babies were hospitalized, the mothers went to the hospital every day. They pumped milk and brought fresh breast milk to their babies. They waited for the time to practice breastfeeding. They pumped breast milk at the lactation clinic every time:

I come to the hospital at times scheduled by the nurses to pump milk for my baby and practice breastfeeding... I have to come every day. When I come home, I have to pump milk for my baby. (P9)

I have to deliver milk to my baby every day. My baby needs fresh milk, as he is small and drinking fresh milk is best... I pump milk at night; when I get to the hospital, I pump again in the lactation clinic. (P5)

During breastfeeding, ten mothers had breast engorgement. They relieved breast engorgement by massaging breasts to express milk with lactation nurses' assistance and independently:

My breasts were engorged... I went to the lactation clinic. The nurses helped massage my breasts, so I felt better. (P4)

My breasts were as hard as coconuts... I applied warm towels and brought a compress... I used the pump and hand compresses. It helped a lot. (P3)

In addition, the mothers resolved the ineffectively suckling babies by stimulating them to suckle by touching, speaking with them, expressing milk into the mouth and stroking their cheeks. They tried to breastfeed until their babies suckled well:

Once my baby had latched on, he would fall asleep... the nurse told me to stroke my baby's cheeks and talk to him... after stroking my baby's cheeks, I talked to him and he suckled some and slept some. (P9)

Most of the time, my baby slept. He didn't suckle well. The nurse told me to try to awaken my baby by speaking or unwrapping my baby... my baby started to suckle well on the last day before coming home. (P15)

Phase 3: Managing to continue breastfeeding

Phase 3 started when the infants were discharged. The duration was from when the babies went home to 6 weeks postpartum. At home, the mothers encountered lactation problems without advice from health care professionals. They managed to continue breastfeeding by solving breastfeeding problems, boosting breast milk supply, adapting to daily activities and being committed to breastfeeding. Their experience strategies are presented below:

Solving breastfeeding problems

The mothers had hurt nipples, because the babies mouthed at the nipples without deeply suckling over the areola. They solved the problem by stimulating their babies to open wide. They modified the breastfeeding positions for attachment following the nurses' advice in the hospital:

I wasn't able to attach...My baby cracked my nipples...I tried to get my baby to suck deeply on the areola. (P3)

I think my nipples hurt...it's probably because my baby can't suckle up to the areola. I feel that...if I had my baby open wide and put it in his mouth, he would push it out after a while. He would take only the nipple...I took him off and gave it to him again. (P17)

Boosting breast milk supply

The mothers received advice from nurses, colleagues, and their family members to drink herbal teas and avoid prohibited foods to boost breast milk supply for continuing breastfeeding. They drank ginger and banana blossom tea. They also drank the Thai northern herb tea "Mai Nomnang" (xantolis) instead of water to increase milk production. After drinking, they felt their breasts were full:

Most of the time, I have ginger tea...like drinking it in place of water.... I drink when I feel thirsty and after pumping milk. I always drink it after waking up. I just drink it all the time. (P6)

Mai Nomnang is effective, because I had less milk and my breasts seemed empty while I was brewing it... When my aunt brewed some for me...I felt like I had milk flow. (P8)

The mothers avoided drinking cold water. They consumed only certain kinds of foods. If they did not practice for a long time, they might have insufficient milk for their babies:

I'd have no milk if I drank cold water because my body would be cold...So, I drank warm water before and after breastfeeding. I've mostly had rice porridge and boiled vegetables. I haven't had anything fried. I add pork without sauce... If I'd kept eating things that didn't help increase milk supply, my milk would have run out and dried up. (P1)

Adapting to daily activities

The mothers adapted their activities in daily life to continue breastfeeding by managing time to do activities in various situations. They adapted themselves by sleeping in the daytime, doing activities while babies were sleeping and requesting family members to support:

I didn't really get any sleep and my body was tired... I was tired in those early days.... I took some daytime naps, too. (P5)

If I'm alone, it's kind of hard... Things like showering, eating or doing laundry have to wait until the baby is asleep. Then I can do it. (P13)

My mom manages all of the housework, diapers and other laundry. I feed the baby. Once my baby goes to sleep, I get to rest, too. (P15)

Being committed to breastfeeding

The mothers persevered with breastfeeding, despite their fatigue. They endured sleeping less because they were happy to breastfeed their babies. They felt rejuvenated when they saw their babies' faces and responses. They were committed to breastfeeding as they loved their babies:

I feel good that I'm breastfeeding. I'm tired, but I have to endure this. I can't do anything about it. I have to endure for my baby, because I love him... At night, my baby sleeps longer for three hours. When he wakes up, he is hungry. He is very cute in my opinion (smiles and laughs). (P8)

Breastfeeding is more tiring than before. From previously getting enough sleep, I have to try to wake up and pump. But just seeing my baby's face makes me feel happy. I'm tired, but I'm having fun. I feel that I'm doing all of this for something. (P3)

Discussion

Our findings highlight the process of 'striving for sufficient milk to have a healthy baby'. In the symbolic interactionist perspective, social interactions with others and socio-cultural environments encountered influence the interpretations of a person [13]. 'Striving for sufficient milk to have a healthy baby' emerged from social interactions with others and the socio-cultural environments of first-time mothers of LPIs. During the interactions, they expressed their thoughts, emotions, needs, and management processes leading to their actions or behaviors.

This finding can be explained in that the mothers of LPTs were in the maternity world once they became aware of their pregnancies. They took on the maternal role of "striving for sufficient milk to have a healthy baby". They demonstrated their behaviors in relation to gestures, timing, facing, and offering their breasts to breastfeed for having healthy babies.

At first, when the mothers found out they were pregnant, they prepared for breastfeeding by seeking and receiving breastfeeding information and consuming healthy foods during pregnancy from nurses, friends,

and internet searching. This finding agrees with Bryant et al., who found that women sought information during pregnancy from other sources, including friends, family, and the internet [14]. Interestingly, the mothers in the study consumed ginger tea and dates for milk supply during pregnancy. The finding is in contrast with the literature review in which women consumed foods and herbs to increase their milk production during the postpartum period [15].

In the study, the mothers gave preterm birth, a situation they had not expected. At the time, they were separated from their infants by hospital protocol for caring for preterm infants. Whereas LPTs are typically healthier, suckle, and swallow more effectively than early preterm infants [16]. However, LPTs have more difficulty latching, suckling, and swallowing than full-term infants [17]. They do not have stimulation to initiate breastfeeding and skin-to-skin contact to promote breastfeeding. Hence, oxytocin is not released as it normally would be during breastfeeding, which is an essential hormone for triggering milk flow or milk ejection reflex [3]. Separation and no skin-to-skin contact interrupt the breastfeeding process and lead to insufficient milk. Maastrup et al. (2014) found that early initiation of breast milk pumping before 12 hours postpartum may increase breastfeeding rates. The mothers in our study learned how to massage the breasts, express milk, and collect milk to have milk supply during separation from their babies until their babies were ready to breastfeed [18]. Jose et al. (2019) reported breast massage as effective in increasing breast milk volume among the mothers of premature neonates [19].

Simultaneously, breastfeeding is a new experience with difficulty maintaining milk supply for first-time mothers. The findings agree with Demirci et al. (2015) and Cescutti-butler (2017), who reported that preterm mothers faced breastfeeding problems and difficulty maintaining their milk supplies [20,21]. The mothers in this study frequently gave breastfeeding every 2-3 hours toward achieving a sufficient milk supply. The finding is similar to Sarapat et al. (2017), who reported that mothers stimulated and expressed every 2-3 hours to maintain sufficient milk supply [22]. The mothers in this study relieved engorged breasts by breast massaging, expressing milk, and pumping to remove milk. The management of breast engorgement in this study is in accordance with a systematic review on treatment for breast engorgement in Mangesi & Zakarija-Grkovic (2016) [23].

At home, the mothers encountered lactation problems without advice from health care professionals. They dealt with these problems by themselves. They modified the baby's position to allow good attachment to resolve cracked nipples. Yilak et al. (2020) reported that poor positioning was more likely to exhibit ineffective breastfeeding techniques, potentially causing nipple pain [24]. As the mothers had cracked nipples due to ineffective suckle lead to having insufficient milk supply. In addition, mothers in this study tried to find ways to boost the breast milk supply. They drank herbal teas (ginger, banana blossom, and Mai Nomnang tea) for sufficient milk as advised by nurses, colleagues, and family members. Herbs (banana blossoms and ginger) are used in Thailand to stimulate breast milk production and have been widely popular from past to present. In the past, herbs were popular for cooking or boiling to drink [25]. During breastfeeding, the mothers in this study consumed only certain kinds of foods and avoided cold water to have adequate milk supplies for their babies. The findings agree with a study of

traditional beliefs in China in which cold foods such as pork liver soup, cock, and cuttlefish were found to be prohibited foods that decrease breast milk production [26].

According to the findings, the mothers adapted their daily activities to continue breastfeeding, such as eating and bathing while their babies were sleeping, and requested their family members to help them do housework during breastfeeding. The findings agree with Flacking et al. (2007), showing that mothers struggled to balance life responsibilities while dealing with uncertain breastfeeding progress and muted feeding cues [27]. The mothers of LPTs were committed to breastfeeding. They felt good at breastfeeding when they saw their babies' faces and responses, even though they felt fatigued. The finding is in accordance with Sarapat et al. (2017)22, showing that mothers were delighted when their babies fed at their breasts and with the findings of Kair et al. (2015) showing that breastfeeding experiences are a beautiful bonding experience [28].

Limitations

The study was conducted at a university hospital in Chiang Mai, Thailand. The findings from this study are representative of a small group of first-time mothers of LPs and cannot be generalized. However, further research is needed by using different types of triangulation methods to validate findings with other groups across different cultures and societies.

Conclusion

The findings have affirmed that "striving for sufficient milk to have a healthy baby" is a process in which first-time mothers of LPs adjusted to exclusive breastfeeding in Thai society. The knowledge gained from this study may help in developing nursing practices that provide support for first-time mothers of LPs to succeed in exclusive breastfeeding. Healthcare professionals can play an important role in supporting these mothers. They can mobilize social support networks for first-time mothers of LPs and encourage them to breastfeed. Moreover, nursing interventions can help mothers to have a sufficient milk supply. It is our hope that this study will prove to be a useful contribution to the existing academic literature on exclusive breastfeeding among first-time mothers of LPs.

The findings can be used as baseline data to raise awareness for health policymakers to enact policies that meet the needs of the mothers of LPs who intend to breastfeed. Specifically, the findings will help Thai policymakers and healthcare professionals to understand the process of successful exclusive breastfeeding among mothers of LPs. Group support, effective mentorship programs, and national follow-up services for giving advice to breastfeeding mothers of LPs could be offered as standard care in Thai hospitals. By learning from this study, health care professionals can reshape policy in a way that promotes exclusive breastfeeding among mothers of LPs. By doing this, the healthcare community can support groups for mothers of LPs to breastfeed exclusively.

Declarations

Ethics approval and consent to participate

Permission to conduct the study was obtained from the Institutional Ethics Review Board Committee, Faculty of Nursing, and the Faculty of Medicine, Chiang Mai University, # No. 2561-EXP065 and No. 2561-05865. The potential participants were informed about the purpose and process of the research and ensured with oral and written guarantees of anonymity and confidentiality. They were clarified that they could refuse or withdraw from the study at any time. All participants signed the informed consent, including permission to record the interviews. All interview transcripts were kept confidential and anonymous, and only the advisory committee could check for review purposes.

Consent for publication

Consent for the use of the qualitative data and for publication was obtained from each participant before each interview.

Availability of data and materials

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Author's contributions

Study Design: RC, KK, JC, NC

Data Collection: RC

Data Analysis: RC, KK

Manuscript Preparation: RC, KK, JC, NC

Study Supervision: KK, JC, NC

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Abbreviations

LPT: Late preterm infants; WHO: World Health Organization; UNICEF: United Nations Children's Fund

References

1. Cartwright J, Atz T, Newman S, Mueller M, Demirci JR. Integrative Review of Interventions to Promote Breastfeeding in the Late Preterm Infant. *Journal of obstetric, gynecologic, and neonatal nursing: JOGNN*. 2017;46(3):347-56. Available from: <https://doi.org/10.1016/j.jogn.2017.01.006>
2. World Health Organization. Breastfeeding. (Internet). 2020a (cited 30 August 2020). Available from: https://www.who.int/health-topics/breastfeeding#tab=tab_1.
3. Lawrence, R. A., & Lawrence, R. M. *Breastfeeding: A guide for the medical profession* (8th ed.). 2016; Maryland Heights, MO: Mosby/Elsevier.
4. Krol KM, Grossmann T. Psychological effects of breastfeeding on children and mothers. *Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz*. 2018;61(8):977-85.
5. World Health Organization. Infant and young child feeding. (Internet). 2020b (cited 30 August 2020). Available from: <https://www.who.int/en/news-room/fact-sheets/detail/infant-and-young-child-feeding>
6. World Health Organization, and The United Nations Children's Fund. Global nutrition target 2025: Breastfeeding Policy Brief. (Internet). 2014 (cited 30 August 2020). Available from:
7. Bureau of Health Promotion, Department of Health. Report A.D. 2014. 2015. Nonthaburi: Ministry of Public Health (in Thai). (Internet). 2017 (cited 23 January 2017). Available from: <http://hp.anamai.moph.go.th>
8. National Statistical Office and United Nations Children's Fund. Thailand Multiple Indicator Cluster Survey 2015-2016, Final Report. NSO and UNICEF, Bangkok. (Internet). 2016 (cited 30 August 2017).

Available from: https://www.unicef.org/thailand/sites/unicef.org.thailand/files/2018-06/Thailand_MICS_Full_Report_EN_0.pdf

9. Martin J, Osterman M. Describing the increase in preterm births in the United States, 2014-2016. NCHS Data Brief. 2018;(312): 1–8.
10. Hackman NM, Alligood-Percoco N, Martin A, Zhu J, Kjerulff KH. Reduced breastfeeding rates in firstborn late preterm and early term infants. Breastfeeding Medicine. 2016;11(3):119-25.
11. Glaser, B. G. Basic of grounded theory analysis. Mill Valley: Sociology Press;1992.
12. Glaser, B. G. Doing grounded theory: Issues and discussions. Mill Valley: The Sociology Press;1998.
13. Aldiabat KM, Navenec L. Philosophical roots of classical grounded theory: Its foundations in symbolic interactionism. Qualitative Report. 2011;16(4):1063-80.
14. Bryant, J., Waller, A. E., Cameron, E. C., Sanson-Fisher, R. W., & Hure, A. J. (2019). Receipt of information about diet by pregnant women: A cross-sectional study. Women and Birth. 2019;32(6):e501-e7.
15. Budzynska K, Gardner ZE, Dugoua J-J, Low Dog T, Gardiner P. Systematic review of breastfeeding and herbs. Breastfeeding Medicine. 2012;7(6):489-503.
16. Lau C, Smith E. A novel approach to assess oral feeding skills of preterm infants. Neonatology. 2011;100(1):64-70. Available from: <https://doi.org/10.1159/000321987>
17. Ahmed AH, Sands LP. Effect of pre-and postdischarge interventions on breastfeeding outcomes and weight gain among premature infants. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2010;39(1):53-63. Available from: <https://doi.org/10.1111/j.1552-6909.2009.01088.x>
18. Maastrup R, Hansen BM, Kronborg H, Bojesen SN, Hallum K, Frandsen A, et al. Factors associated with exclusive breastfeeding of preterm infants. Results from a prospective national cohort study. PLoS one. 2014;9(2):e89077. Available from: <https://doi.org/10.1371/journal.pone.0089077>
19. Jose S, D'Souza SR, Sreedevi C. Effect of breast massage on breast milk volume and experience on the expression of breast milk among mothers of preterm neonates. Manipal Journal of Nursing and Health Sciences (MJNHS). 2019;5(2):6-11.
20. Demirci JR, Happ MB, Bogen DL, Albrecht SA, Cohen SM. Weighing worth against uncertain work: the interplay of exhaustion, ambiguity, hope and disappointment in mothers breastfeeding late preterm infants. Maternal & child nutrition. 2015;11(1):59-72. Available from: <https://doi.org/10.1111/j.1740-8709.2012.00463.x>
21. Cescutti-Butler L, Hewitt-Taylor J, Hemingway A. Powerless responsibility: A feminist study of women's experiences of caring for their late preterm babies. Women and Birth. 2020;33(4):e400-e8. Available from: <https://doi.org/10.1016/j.wombi.2019.08.006>
22. Sarapat P, Fongkaew W, Jintrawet U, Mesukko J, Ray L. Perceptions and practices of parents in caring for their hospitalized preterm infants. Pacific Rim International Journal of Nursing Research. 2017;21(3):220-33.

23. Mangesi L, Zakarija-Grkovic I. Treatments for breast engorgement during lactation. Cochrane Database of Systematic Reviews. 2016(6). PMID: 27351423, DOI: [10.1002/14651858.CD006946.pub3](https://doi.org/10.1002/14651858.CD006946.pub3)
24. Yilak G, Gebretsadik W, Tadesse H, Debalkie M, Bante A. Prevalence of ineffective breastfeeding technique and associated factors among lactating mothers attending public health facilities of South Ari district, Southern Ethiopia. PloS one. 2020;15(2):e0228863. Available from: <https://doi.org/10.1371/journal.pone.0228863>
25. Yimyam, S. Galactagogue herbs. Nursing Journal. 2018;45(1):133-145 (in Thai).
26. Wang Q, Fongkaew W, Petrini M, Kantaruksa K, Chaloumsuk N, Wang S. An Ethnographic Study of Traditional Postpartum Beliefs and Practices among Chinese Women. Pacific Rim International Journal of Nursing Research. 2019;23(2):142-
55. https://www.who.int/nutrition/publications/globaltargets2025_policybrief_breastfeeding/en/
27. Flacking R, Ewald U, Starrin B. "I wanted to do a good job": experiences of 'becoming a mother' and breastfeeding in mothers of very preterm infants after discharge from a neonatal unit. Social Science & Medicine. 2007;64(12):2405-16.
28. Kair LR, Flaherman VJ, Newby KA, Colaizy TT. The experience of breastfeeding the late preterm infant: a qualitative study. Breastfeeding medicine. 2015;10(2):102-6. Available from: <https://doi.org/10.1089/bfm.2014.0121>

Table

Table 1: Demographic Characteristics of the Participants (N=17)

Characteristics	Number	Percentage
Age (years)		
21-30	10	58.82
31-37	7	41.18
Educational Level		
Secondary School	2	11.76
Vocational College	3	17.65
Bachelor's Degree	11	64.71
Master's Degree	1	5.88
Occupation		
General Employee	7	47.06
Housewife	3	17.65
Merchant	2	11.76
Civil Servant	1	5.88
Government Employee	3	17.65
Type of Family		
Extended	15	88.24
Nuclear	2	11.76
Number of Family Members (persons)		
3-4	9	52.94
5-6	8	47.06
Family Monthly Income (baht)		
5001-10,000	1	5.88
10,001-15,000	3	17.65
15,001-20,000	3	17.65
20,001-25,000	8	47.06
25,000-30,000	2	11.76

Figures

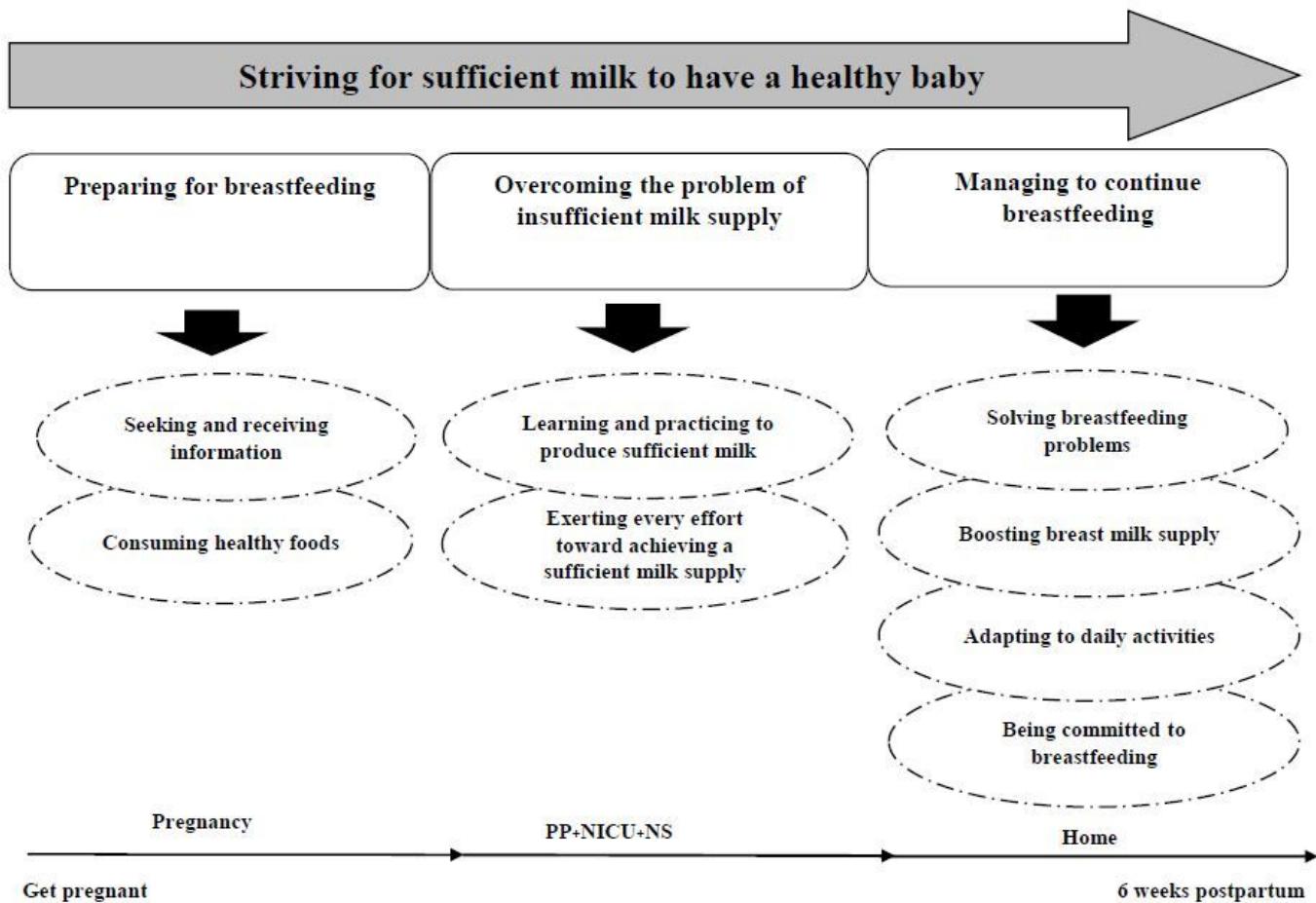


Figure 1

The process of “striving for sufficient milk to have a healthy baby”.