Asian Nursing Research 13 (2019) 154–160

Contents lists available at ScienceDirect

Asian Nursing Research

journal homepage: www.asian-nursingresearch.com

Research Article

Breastfeeding Experiences of Taiwanese Mothers of Infants with Breastfeeding or Breast Milk Jaundice in Certified Baby-Friendly Hospitals

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ARTICLE INFO

Article history:
Received 20 October 2018
Received in revised form
14 April 2019
Accepted 15 April 2019

Keywords:
anxiety
breast feeding
jaundice, neonatal
qualitative research

ABSTRACT

Purpose: The purpose was to explore the breastfeeding experiences of mothers of infants with breastfeeding or breast milk jaundice.
Methods: In-depth qualitative interviews and content analysis were conducted with nine mothers of newborns with breastfeeding and/or breast milk jaundice who breastfed their babies during the first year postpartum.
Results: Mothers' experiences can be described in four phases and six themes. (1) Prenatal stage: build breastfeeding belief, i.e., breastfeeding is best and a natural behavior, without awareness of neonatal jaundice; (2) stage after neonatal jaundice started to appear: include two themes, questioning beliefs in breastfeeding and happiness in being a mother. Mothers lacked knowledge and ignored the threat of neonatal jaundice, mainly focused on their physical discomforts and worried about insufficient breast milk; they also felt an intimate mother–infant bond through breastfeeding; (3) stage when newborns had confirmed diagnosis of breastfeeding or breast milk jaundice that required medical attention: include two themes, diagnosis of breastfeeding or breast milk jaundice and phototherapy caused negative emotions and regaining original beliefs about breastfeeding. They struggled through emotional swings and inconsistent advices about whether phototherapy and formula supplementation are needed. Then, they decided breastfeeding or breast milk jaundice is only temporary and retrieved initial beliefs of breastfeeding. (4) Stage after neonatal jaundice faded and mothers continued breastfeeding: insisting and adapting.
Conclusion: Breastfeeding mothers were unaware of neonatal jaundice until medical attention was required; they experienced physical and mental distress and gradually learned to manage jaundice while insisting on breastfeeding through their breastfeeding beliefs and happiness in being mothers.

Introduction

Promotion of breastfeeding has been included as an important government measure to improve the well-being of women and children [1]. The Taiwanese government encourages hospitals to implement baby-friendly hospital practices and become certified baby-friendly hospitals [2]. More than 75% of neonates in Taiwan were born in certified baby-friendly hospitals in 2014 [3]. According to a 2016 national survey, the exclusive breastfeeding rate among women during the first month after delivery reached 66.2%, indicating a satisfactory result in promoting breastfeeding [4].

Baby-friendly hospitals in Taiwan were certified using criteria based on the "Ten Steps to Successful Breastfeeding" guidelines developed by the World Health Organization [5]. In an attempt to tailor the certification process to the local culture, the Taiwan Health Promotion Administration awards "baby-friendly hospital" status, based on a locally developed scoring system [6]. Previous studies found that certified baby-friendly hospitals in Taiwan had a higher rate of breastfeeding and implementation of the ten steps

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https://doi.org/10.1016/j.anr.2019.04.003
p1976-1317 e2093-7482/

[7]. Since a given hospital's qualification is defined by the composite score of all the ten steps, certain steps are likely to be overlooked during the assessment. In the Taiwanese setting, early feeding (step 4) and rooming-in (step 7) are the hardest steps to implement because of the Chinese traditional practices of postpartum confinement, which require new mothers to rest as much as possible to prevent adverse health consequences [8]. Mothers' reports show that the implementation of the other eight steps is usually close to or above 80% in certified baby-friendly hospitals [9]. Usually, baby-friendly hospitals provide prenatal breastfeeding education, promote the benefits of breastfeeding, provide breastfeeding education leaflets and manuals to mothers, establish dedicated breastfeeding health educators in hospital outpatient clinics, help mothers with their breastfeeding practices immediately after birth, and provide counseling and assistance for breastfeeding mothers.

Neonatal jaundice is commonly seen among ethnic Chinese newborn babies [10]. Neonatal jaundice is defined as “yellow-orange color of the neonate's skin and mucous membranes that occurs after 24 hours of life as a result of increase in the level of unconjugated bilirubin” [11]. Hyperbilirubinemia, shown in the yellow-orange skin color and yellow sclera, represents an imbalance between bilirubin production and its metabolism [12]. For 60% of infants, neonatal jaundice reflects a normal transitional phenomenon, and it brings no harm to babies [12,13]. However, in some infants, serum bilirubin levels may rise excessively, which could cause bilirubin encephalopathy (kernicterus) and lead to death or lifelong neurologic sequelae. Therefore, close monitoring is required.

In low-risk babies, majority of neonatal jaundice is physiological jaundice. Physiological jaundice usually appears on the second or third day after birth and faded at about two weeks [14]; in most cases, treatment is not required [13]. In Taiwan, women are discharged from hospitals 3 to 6 days after birth, and about 33.5% of the neonates have neonatal jaundice at three days after birth [15]. Jaundice is the most common cause of neonatal readmission within the first month after birth [16,17].

Following the growth in breastfeeding, the prevalence of neonatal jaundice, or more specifically breastfeeding or breast milk jaundice, seems to have climbed as well in ethnic Chinese babies [10]. More than two-thirds of breastfeeding neonates have breastfeeding or breast milk jaundice [13]. Breastfeeding jaundice occurs when breastfed infants did not consume enough breast milk, had excessive weight loss, and dehydrated after the first 4-7 days of life [18], which may exacerbate neonatal jaundice. While breast milk jaundice is characterized by indirect hyperbilirubinemia in a breastfed newborn that develops after the first 4-7 days of life, it does not disappear until 2 to 3 months postpartum (persists longer than physiologic jaundice) and has no other identifiable cause [13]. Breast milk jaundice in the second or later weeks of life in the healthy newborn is a normal and regularly occurring extension of neonatal jaundice [13]. Previous research showed a significant association between neonatal jaundice and Asian ethnicity, especially in Japanese and Chinese populations [10,19]. Moreover, exclusive breastfeeding particularly increases the clinical symptoms of neonatal jaundice [20].

When bilirubin levels are higher than 15 mg/dL, doctors recommend that babies stay in the hospital for phototherapy. According to Taiwanese custom, women have to practice “doing the month” customs and stay at home [8]. As a result, those women are separated from their neonates and cannot breastfeed their babies, which could cause a lower milk supply and lactation problems [21]. Some mothers worry that breastfeeding could worsen a newborn's jaundice, which could result in a longer duration of phototherapy [22]. These women could become anxious and consider discontinuing breastfeeding [23]. Past studies seldom described breastfeeding experiences of women with breastfeeding-associated jaundiced babies. The objective of this study was to explore breastfeeding experiences among mothers of infants with breastfeeding or breast milk jaundice in certified baby-friendly hospitals in Taiwan.

Methods

Study design

The study used a qualitative descriptive design. Data were analyzed using content analysis.

Setting and sample

Authors recruited participants via the website Baby-Home, which is a popular website for expectant and new parents in Taiwan. The inclusion criteria were healthy mothers whose infants had experienced breastfeeding or breast milk jaundice when they were breastfed, who gave birth to a full-term baby at certified baby-friendly hospitals, and whose newborns did not have any abnormalities except for neonatal jaundice. A total of nine participants were interviewed. Among them, five were primiparas and four were multiparas. Five babies were monitored at home, while four had phototherapy at a hospital. The average age of the mothers was 33.33 years. All participants had an educational level of college or higher. The average breastfeeding time was 6.67 months (4~11 months). All were continuing breastfeeding at the time of the interview.

Ethical consideration

The study obtained approval from the institutional review board at Taipei Tzu Chi Hospital (Approval no. IRB-02-M03-018). After explanation of the study, participants signed a consent form, and interviews were recorded with their consent.

Measurements/instruments

In-depth qualitative interviews were conducted according to a semistructured interview guideline (Table 1) during the period of September 2013 through February 2014. The guideline was developed based on a review of literatures [10,13,18]. Since the literature suggested a close association between breastfeeding and neonatal jaundice, the interview guidelines began with general breastfeeding experiences and then narrowed down to neonatal jaundice-related breastfeeding experiences.

Table 1 *Interview Guide.*

1. How did you know about breastfeeding during pregnancy? What did you feel at that time?
2. From delivery to postpartum period, how did you know about breastfeeding? What did you feel at that time?
3. Did you encounter any problems in breastfeeding? What did you feel? How did you deal with these problems?
4. What do you think of neonatal jaundice? How about breastfeeding and breast milk jaundice? Please describe your experience during the period of neonatal jaundice.
5. Did neonatal jaundice influence your decision to breastfeed? How?
6. Do you think there is a relationship between neonatal jaundice and breastfeeding?
7. What did the hospital staff do to help you deal with breastfeeding? Did you find their practices helpful? Why?
8. What are reasons that would make you want to continue breastfeeding?

Table 2 *Themes and Subthemes.*

Stage	Theme	Subtheme
Prenatal stage	Build breastfeeding belief without awareness of neonatal jaundice	(1) Natural maternal behavior (2) Breastfeeding is best (3) Unawareness of neonatal jaundice
After neonatal jaundice started to appear	Questioning beliefs in breastfeeding	(1) Insufficient breast milk would automatically resolve (2) Stone on the chest (3) Pressure and doubts from family and friends (4) Lack of knowledge and ignorance of the threat of neonatal jaundice (5) Stress from baby-friendly hospital staff to push breastfeeding
	Happiness in being a mother	(1) Agreeing with the benefits of breastfeeding (2) Close bond and the best comfort
Newborns had confirmed diagnosis of breastfeeding or breast milk jaundice that required medical attention	Diagnosis of breastfeeding or breast milk jaundice and phototherapy caused negative emotions	(1) Separating from the newborn due to phototherapy (2) Anxiety (3) Guilt/sadness: Do I cause neonatal jaundice in my baby? (4) Inconsistent advices about whether treatment and formula supplementation are needed
	Regaining original beliefs in breastfeeding	(1) Breastfeeding or breast milk jaundice is only temporary (2) Relying on self (3) Retrieving initial beliefs
After neonatal jaundice faded and mothers continued breastfeeding	Insisting and adapting	(1) Breastfeeding is never difficult if I insist on doing it (2) No need to worry about not having enough milk, the body will produce

Data collection/procedure

The average length of time for the interviews was 30 to 50 minutes. During the research process, data collection and analysis were conducted in parallel. Authors stopped recruiting participants when the data showed continuously repeating themes without the emergence of new themes.

Data analysis

The contents of the interview were coded and analyzed with interview notes. The researcher kept all texts recorded in audio files and used qualitative analysis software to store and manage the data (ATLAS ti GmbH, Berlin, Germany). All the data including quotations were classified according to the classification principles [24]. Credibility, auditability, conformability, and fittingness were used to assess the data collection and analysis [25]. The first author conducted the interviews and maintained openness during conversations. The first author had taken qualitative research courses and had more than ten years of experience in obstetrical clinical practice and teaching. The researchers carefully followed the steps and kept consistent throughout the research process. The data were carefully read multiple times to ensure hermeneutic circle. The results were constantly discussed among researchers and were confirmed by participants.

Results

All women's experiences followed the same time flow. Therefore, women's experience in breastfeeding and neonatal jaundice were categorized into 4 stages: the prenatal stage, the stage after neonatal jaundice started to appear, the stage when newborns had confirmed diagnosis of breastfeeding or breast milk jaundice that required medical attention, and the stage after neonatal jaundice faded and mothers continued breastfeeding. Themes and subthemes which emerged for each stage are described below and summarized in Table 2.

Prenatal stage: build breastfeeding belief without awareness of neonatal jaundice

During pregnancy, all women (n = 9) started to receive breastfeeding information and perceived that society supported the concept of “breastfeeding is best.” Mothers-to-be gradually built up a belief that breastfeeding was the best way to raise their infants based on their perceptions and influence from the outside world. Several participants (n = 5, 55.6%) stated that they were not aware of neonatal jaundice. Participant I said,“*I had an impression that breastfeeding was good for babies and babies would have stronger immunity. But I had never heard of neonatal jaundice and its' relationship to breastfeeding (121501)*” Participant C said, “*Everyone talked about the benefits of breastfeeding. Nobody ever talked about the dark side of breastfeeding such as the (engorgement) pain it caused and the fact that it caused jaundice (091025).*” The theme in the prenatal stage was “build breastfeeding belief without awareness of neonatal jaundice.”

Build breastfeeding belief without awareness of neonatal jaundice included three subthemes: (1) Natural maternal behavior (n = 4, 44.4%). (2) Breastfeeding is best (n = 9, 100.0%). Breastfeeding is the most natural maternal action and has been regarded as the right way for women to nurture their infants. Participant A said, “*I myself want to breastfeed! (022501), and I felt right away that babies are supposed to be fed breast milk (022502).*” (3) Unawareness of neonatal jaundice (n = 5, 55.6%). Women felt that they were naive about neonatal jaundice. Participant A said, *“When a problem occurred with jaundice, I did not know it (022523).”* Participant I said, “*I had no idea what neonatal jaundice was; even if it was in the Mother's Handbook, it seemed like it was nothing to be concerned about (121501).”*

Stage after neonatal jaundice started to appear: questioning beliefs in breastfeeding and happiness in being a mother

In this period, the newborn infants had jaundice (yellowing of the skin or an increased level of bilirubin), but the condition was not serious, and no medical treatment was given. In this stage, mothers experienced two main conflicting themes “questioning beliefs in breastfeeding” and “happiness in being a mother.”

Questioning beliefs in breastfeeding

All participants expressed questioning beliefs in breastfeeding (n = 9, 100.0%). Questions occurred when participants started breastfeeding and encountered some difficulties. They realized that breastfeeding was not as easy as they had thought. They had not expected any breastfeeding difficulties. Participant I said *“nurses would tell you that babies have little appetite. They only need*

little milk, so I don't have to worry. However, I still had doubts (121512)." Participant F believed that hospital did not give enough information before. *"I felt they intentionally skipped the part that you would suffer swollen breasts and you need to learn how to breastfeed, it's not inborn." (101027).* Participant B said, *"They said that my baby was a little yellow. Jaundice is normal, and nobody related jaundice to breastfeeding, like he did not suckle well at first (090325)."*

Questioning the belief had five subthemes: (1) Insufficient breast milk would automatically resolve (n = 4, 44.4%). Before delivery, pregnant women received information telling them the importance of breastfeeding and they should not worry about having insufficient milk because breastfeeding itself would help milk secretion. Participant F said, "*The information they have provided states that breast milk will increase if breastfeeding is carried out frequently and that, [if I] breastfed more frequently, my baby's skin would improve. I have observed that this is not the case (101026).*" (2) Stone on the chest (n = 3, 33.3%). Participants felt their breasts turning hard and having a burning sensation. Engorgement caused pain and feelings of unease. "Participant F said, "*When my breasts are swollen and lumpy, I feel terrible (101016).*" (3) Pressure and doubts from family and friend (n = 4, 44.4%). If the participant did not seem to produce a large amount of milk, her family and friends would worry that the newborns could not have enough intake or have another health condition. These led to stress. Participant A said, "*My parents say that the cries of a baby mean that he or she is hungry. It is exceedingly difficult to bridge this generation gap and communicate with them (022504).*" (4) Lack of knowledge and ignorance of the threat of neonatal jaundice (n = 3, 33.3%). Health professionals regarded neonatal jaundice as a normal physiological phenomenon at the time. They did not provide enough guidance on neonatal jaundice, so some participants did not understand why later it could become a concern. Participant C said, "*I had heard of it, but I didn't really know what would happen and how serious it would become. I only knew the term but I really didn't understand the consequences or impact (091023).*" (5) Stress from hospital staff to push breastfeeding despite neonatal jaundice (n = 6, 66.7%). The government has been promoting breastfeeding, and hospitals are demanded to push breastfeeding. Health professionals' implementation of these measures placed pressure on women. Participant F said, "*I know that the Ministry of Health and Welfare has made some recommendations, so the hospital hopes that mothers will do their best to breastfeed. However, this causes a tremendous amount of stress for mothers (101038).*"

Happiness in being a mother

Happiness in being a mother is the feeling that only a mother could enjoy during breastfeeding (n = 5, 55.6%). Participant B said *"I felt that breastfeeding gave me a sense of happiness (090319)."* Happiness in being a mother had two subthemes: (1) Agreeing with the benefits of breastfeeding (n = 4, 44.4%). Many parents agree that breast milk is good for infants. (2) Close bond and the best comfort (n = 3, 33.3%). While breastfeeding, mothers can have intimate contact with the baby and cultivate the parent–child bond. Participant I said, "*By directly breastfeeding and carrying my baby, I sensed that the intimacy increased, and I felt close to my baby (121572).*"

Stage when newborns confirmed diagnosis of breastfeeding or breast milk jaundice that required medical attention: breastfeeding or breast milk jaundice and phototherapy caused negative emotions and regaining original beliefs in breastfeeding

Neonatal jaundice required treatment or phototherapy at this stage. The women regained their faith in breastfeeding after being emotionally influenced. Two themes at the time were "breastfeeding or breast milk jaundice and phototherapy caused negative emotions" and "regaining original beliefs in breastfeeding."

Breastfeeding or breast milk jaundice and phototherapy caused negative emotions

Most of the participants (n = 7, 77.8%) stated breastfeeding or breast milk jaundice and phototherapy caused negative emotions. In this period, participants expected to discharge home with their infants. But some participants underwent emotional changes because they had to separate from their infants who were kept in the hospital for observation and/or phototherapy. Participant F said, *"Upon hearing the news, I felt sad. Looking at the babies in the light box I felt sorrow in my heart (101034)."* Negative emotions had four subthemes: (1) Separating from the newborn due to phototherapy (n = 3, 33.3%). Some mothers were told to leave their infants at the hospital because of a bilirubin level ≥15 mg/dl and the baby needed phototherapy. Participant A said, "*I am breastfeeding. If the baby cannot be dismissed from the hospital, I will be discharged home alone. That does not make sense (022524).*" Participant B said, "*I could not bear to see my baby, eyes still shut, stripped naked and forced to remain in the hospital, while I was discharged (090321).*" (2) Anxiety (n = 5, 55.6%). Participants did not want to be separated from their babies, and they worried about the baby's health. Participant F said, "*I felt sad when I was told about this. During this process, I could see many babies in incubators, and I felt sad looking at him. The hospital staff would tell me to feed my baby with a milk bottle, and I cried while feeding him. At that time, I felt anxious (101035).*" (3) Guilt/sadness: Do I cause neonatal jaundice in my baby (n = 4, 44.4%)? A high level of bilirubin may be the result of not enough intake or dehydration. Participants tended to relate their infants' condition to not having enough breast milk. Participant I said, *"I blamed myself for it. I always felt that breastfeeding was the right thing to do. I wanted to insist on doing it, but when my baby had to accept treatment in hospital, I felt bad about it (121533)."* Participant I said, "*I blamed myself a lot. I felt that, even knowing that breastfeeding was right, I could not stand it when my child was subsequently hospitalized (121533).*" (4) Inconsistent advices about whether treatment and formula supplementation are needed (n = 4, 44.4%). Health-care providers' treatments were sometimes not consistent with one another. Participant H said, "*The doctor says that you can go back and letting children drink some formula milk (102126).*" "*I was released from the hospital four days after giving birth, and the doctor asked me if I would let my infant receive treatment. He told me it was optional. I could decide on my own. I did not know how to decide, I am not a health professional. I wish the doctor could have told me exactly what to do (102121)*"; participant D said, "*The nurse told me that the level of bilirubin was high, and after I went to the postnatal care center, the nurse there also told me that my baby had a high level of bilirubin. But after I went back to the hospital, the doctor said that the condition was normal and no treatment was needed (092139).*" Participant G said, "*When he was hungry, nurses gave him formula to quickly metabolize. And they gave him longer phototherapy (101422).*"

Regaining original beliefs in breastfeeding

Most of the participants (n = 7, 77.8%) stated regaining original beliefs in breastfeeding. After some of the infants received formula and phototherapy for several days, participants still hoped to breastfeed them. Participant G said that she would not change her mind about breastfeeding. ***"I would let him receive phototherapy and feed him more. If there was not enough breast milk, I fed him formula to speed up his metabolism, and then breastfed him later (101424)."*** Regaining original beliefs in breastfeeding had three subthemes: (1) Breastfeeding or breast milk jaundice is only temporary (n = 5, 55.6%). Participants gradually learned that insufficient intake or

dehydration would promote jaundice and after they had more milk, the level of bilirubin would go down. Participant A said, "*Among the materials I read, I found one saying that neonatal jaundice was like chicken pox, a necessary process. It could be like the flu, it would end. I didn't need to worry. After I understood the situation, I stopped worrying (022532).*" Participant G said, *"I realized neonatal jaundice was only temporary. I wouldn't discontinue breastfeeding. Formula was only given to the baby in the hospital. After that I kept feeding my baby breast milk. I did not have enough breast milk, but I still breastfed, and added some formula. I had my baby drink a lot of water. The baby needed water to decrease the level of bilirubin (101423).*" (2) Relying on self (n = 4, 44.4%). When participants encountered problems about their newborn infants and could not find any useful information, they decided to search for information themselves. Participant A said, "*I used Google to find information myself* (022523)." Participant E said, *"I regularly discussed the situation with my physician, and the hospital also gave me flyers on jaundice. In addition, I searched the Internet for experiences from other parents and information from other doctors, and I combined all this information together (100320)."* (3) Retrieving initial beliefs (n = 7, 77.8%). After deciding neonatal jaundice was only temporary, participants wanted to resume breastfeeding for their babies' health. Participants B said, "*It's because I know that breast milk would lower the level, and my daughter no longer had a high level after she had more breast milk. Therefore, jaundice did not influence my breastfeeding. When she had yellowing, I fed her more (090324).*" Participant G said, "*This (breastfeeding belief) helped me not to waver with regard to continuing breastfeeding. I only let my child undergo phototherapy when he was hospitalized, and I supplemented his diet with formula milk when my breast milk was insufficient so that his metabolism would be strengthened. After that, I breastfed my child as usual (101424).*"

Stage after neonatal jaundice faded and mothers continued breastfeeding: insisting and adapting

Breast milk jaundice often disappears after two to three months. The women believed that if they insisted on breastfeeding, eventually they would succeed after their babies' symptoms faded. After neonatal jaundice faded and mothers continued breastfeeding, the theme **"**insisting and adapting**"** emerged (n = 7, 77.8%).

Insisting and adapting emerged when women found ways to cope with neonatal jaundice. Participant I indicated her determination. *"I just loosened up a little. I fed my baby formula if I did not produce enough. So I could keep up later (121570).***"** Insisting and adapting had two subthemes: (1) Breastfeeding is never difficult if I insist on doing it (n = 6, 66.7%). Participants felt that breastfeeding could strengthen the bond between mothers and children. Despite hardship and frustration, they would insist on doing the right things for their children. Participant H said, "*Although I sometimes felt physically exhausted, I continued breastfeeding, as I felt that this will make him healthier (102113).*" (2) No need to worry about not having enough milk, the body will produce (n = 3, 33.3%). Participants tended to continue breastfeeding, but sometimes they made decisions because of other reasons. Participant F said, ***"****I did not always have sufficient breast milk, so in that case, I fed formula. I later felt relieved, since the baby has had breast milk. If I can breastfeed six months to one year, it's good enough (101021).***"** Participant C said, *"Now I hold an attitude of letting nature take its course. If I have milk, I will continue breastfeeding; otherwise—if I run out of milk—that is it, and I use formula (091020)."*

Discussion

This study explored the breastfeeding experiences of mothers of infants with breastfeeding or breast milk jaundice in certified baby-friendly hospitals in Taiwan. This study identified four phases (prenatal stage, stage after neonatal jaundice started to appear, stage when newborns had confirmed diagnosis of breastfeeding or breast milk jaundice that required medical attention, and stage after neonatal jaundice faded and mothers continued breastfeeding) and six themes (building breastfeeding belief without awareness of neonatal jaundice, questioning beliefs in breastfeeding, happiness in being a mother, diagnosis of breastfeeding or breast milk jaundice, negative emotions caused by phototherapy, regaining original beliefs about breastfeeding, and insisting and adapting).

With the promotion of breastfeeding in the hospital environment, many mothers of infants with breastfeeding or breast milk jaundice can breastfeed successfully, even when their breastfeeding practices are temporarily stopped by phototherapy or interrupted by formula supplementation to increase bilirubin metabolism. Mothers usually built their beliefs in breastfeeding, i.e., breastfeeding is best and a natural behavior, during pregnancy and did not expect any difficulties until three days after delivery, when neonatal jaundice started to appear. Participants experienced painful engorgement and pressure from families and hospital staff at the time. However, they also felt the satisfaction associated with breastfeeding during the period. The need to monitor the neonatal bilirubin level and phototherapy caused negative emotions among mothers. Mothers started to question hospital staff for not providing full information and then learned to adapt by actively seeking information and watching the infants' responses. At last, they regained their beliefs in breastfeeding and realized that "insisting and adapting" was the key to breastfeeding success.

This study found that, when their infants had neonatal jaundice, some mothers increased their breastfeeding, and some mothers fed their infants formula to supplement breastfeeding, which was consistent with previous findings [20]. In the study, the decision to increase breastfeeding or feed formula seemed to depend on the doctor's advice in the beginning; however, gradually, the mothers incorporated their observations of their infants and information they actively collected as bases to decide how to manage their infants' jaundice. The mothers in the study usually expressed that supplementing breast milk with formula was all right if they did not have sufficient breast milk or the bilirubin level increased. They thought that the infants could still benefit from breastfeeding as long as some breast milk was given. Further study is needed to examine different ways of increasing liquid intake, formula supplementation, or breastfeeding, which could result in better jaundice management in infants with neonatal jaundice.

This study found that women lacked awareness of neonatal jaundice, similar to a previous study [26] and did not pay attention to the problem when there was no direct influence on their infants until their babies remained in the hospital or were readmitted for treatment. Women whose newborn infants had neonatal jaundice or received phototherapy usually felt anxious, and the anxiety became worse when they had to be separated from their infants, which was similar to previous study findings [27]. This study found that these mothers felt guilty and blamed themselves for insisting on breastfeeding, which they believed was the best way to feed their infants. This result was consistent with a previous study [28]. These women were constantly struggling to decide whether they should continue breastfeeding. Assurance from health professionals is needed to help women deal with negative emotions and adapt to the situation.

Although the Maternal Health Booklet included information about neonatal jaundice, the booklet described it as a normal physiological phenomenon and did not relate it to breastfeeding. Prenatal health education usually emphasizes the benefits of breastfeeding and teaches breast care and breastfeeding skills, but

it neglects to provide any information about neonatal jaundice and breastfeeding and breast milk jaundice. The study participants only heard about neonatal jaundice when the infants required treatment or monitoring. At the same time, they experienced the physical discomfort associated with pain in the breast and insufficient breast milk concerns while they had just started to practice how to breastfeed. They may have found it too overwhelming to learn about neonatal jaundice effectively at that time. Previous research showed that prenatal training could significantly help mothers understand neonatal jaundice [29]. This finding suggests that information about neonatal jaundice should be provided in prenatal health education for pregnant women who intend to breastfeed to improve knowledge and perceptions of breastfeeding and breast milk jaundice and reduce anxiety among postpartum women. Prenatal breastfeeding education could incorporate contents that prepare women to understand that breastfeeding is a learned behavior and that difficulties in breastfeeding are common and expected (breast swelling and pain). Information about neonatal jaundice, breastfeeding and breast milk jaundice, and ways to monitor and manage breastfeeding and breast milk jaundice could be incorporated into prenatal education for mothers who intend to breastfeed.

Qualitative study found that breastfeeding difficulties are a common experience for nursing mothers in the postpartum period [30]. This study found that women could insist on continuing breastfeeding despite their physical discomfort or the impact from neonatal jaundice during the first week after birth. The finding was differed from that of previous studies, which showed that mothers stopped breastfeeding when and after their neonates had breastfeeding or breast milk jaundice [23]. In the contemporary breastfeeding-friendly environment, it was found that mothers did not need to stop and could continue breastfeeding. A firm belief in breastfeeding and social support may be the key to keep women breastfeeding.

The qualitative interviews were conducted retrospectively to retrieve experiences and thoughts. Problems with recall may be a concern. However, it was found that the mothers could clearly indicate whether their infants received treatment for neonatal jaundice. For those cases whose infants were observed at home, the contents of home observations were not included in the interviews. No women in the study stopped breastfeeding completely because of breastfeeding or breast milk jaundice, and further study may be needed to target women who stopped breastfeeding because of breastfeeding or breast milk jaundice specifically.

Conclusion

The breastfeeding experiences of Taiwanese mothers of infants with breastfeeding or breast milk jaundice in baby-friendly hospitals can be described in the context of four phases and six themes. Women overcome their breastfeeding problems, learn to deal with breastfeeding or breast milk jaundice, and gradually learn to manage jaundice while continuing to breastfeed their infants. Breastfeeding belief and their sense of happiness in being mothers were the main drivers for their insistence on continuing to breastfeed. In addition to breastfeeding skills, nurses could enhance mothers' breastfeeding belief and the close bond that they experienced when they breastfed in order to encourage mothers to overcome the difficulties associated with breastfeeding their infants who have jaundice. During the second and third phases, when their babies had neonatal jaundice, women experienced physical discomfort, negative emotions, and external pressures. It is essential for health professionals to provide assistance and for the family to provide support during this time to promote maternal well-being.

Conflicts of interest

The authors declare no conflict of interest.

Acknowledgments

This study was funded by the Taiwan Nurses Association (grant no 1022022).

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