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Original Article

An exploration of the breastfeeding behaviors of women after cesarean section: A qualitative study

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ABSTRACT

Objectives: To explore the factors affecting breastfeeding behaviors in women after cesarean section.**Methods:** This is a qualitative study that used a phenomenological approach. This study used individual face-to-face interviews with 19 women who underwent a cesarean section in a Women and Children's Hospital in China between July to September 2019. Information saturation was used to determine sample size. Data were analyzed using a thematic content analysis method. Themes were developed based on the theory of planned behavior.**Results:** Thirteen (68.42%) had a planned cesarean section, and six (31.58%) cesarean sections were unplanned or emergent. Three major themes emerged: ambivalent attitude about breastfeeding, motivation to comply with the traditional cultural norms, and barriers and challenges. The motivating factors for breastfeeding after cesarean sections included perceived benefits of human milk, support from healthcare professionals, and responsibility for breastfeeding. The challenges for breastfeeding after cesarean sections included physical discomfort, knowledge and skills deficit of breastfeeding, lactation deficiency, and lack of knowledge and coping skills in managing their depressive mood after cesarean sections. There were a couple of neutral factors, such as the influences of family and peers. These factors could influence women either positively as facilitators or negatively as barriers.**Conclusions:** The findings can offer valuable information for healthcare professionals to help women breastfeed after cesarean sections. To promote women's breastfeeding behaviors after cesarean sections, it is necessary to change women's attitudes, belief systems, and the external environments and help them become more confident.© 2020 The authors. Published by Elsevier B.V. on behalf of the Chinese Nursing Association. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

What is known?

- Undertaking a cesarean section has become a more common way of delivering in recent years.
- Women undergoing cesarean sections have a lower rate in early-initiation breastfeeding and the duration of breastfeeding.
- Breastfeeding is known to be beneficial for both mothers and infants.

What is new?

- Motivating factors to promote breastfeeding after cesarean sections include perceived benefits of breastmilk, support from healthcare professionals, and the perceived responsibility of breastfeeding.
- The challenges for breastfeeding after cesarean sections are physical discomfort, knowledge deficit of breastfeeding, lactation deficiency, and lack of knowledge and coping skills in managing their depressive mood after cesarean sections.
- Neutral factors, such as external cultural norms and the influences of family and friends, can influence women either positively as facilitators or negatively as barriers.

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1. Introduction

Undertaking a cesarean section has become a more common way of delivering around the world in recent years. In western countries, like the United States, 31.9%, about a third, of the births are under cesarean section [1]; in East Asia, like China, the rate is even higher [2]. Cesarean sections are effective in saving lives of parturient women and perinatal infants under certain labor emergencies, such as dystocia. However, cesarean sections also come with challenges, one of which is breastfeeding. Women undergoing cesarean sections have a lower rate in early-initiation breastfeeding and the duration of breastfeeding [2,3].

Timely initiation of breastfeeding is a vital measure to promote the health of infants and women after delivery. However, compared with vaginal delivery, women with a cesarean section had a significantly lower rate of early-initiation breastfeeding. A population-based study of more than 5546 childbirths found that women undergoing a cesarean section had an 86% lower rate of early-initiation of breastfeeding [3]. Those women with a cesarean section not only have delayed breastfeeding right after delivery but also have a lower rate of exclusive breastfeeding and a shortened duration of breastfeeding [4].

Breastfeeding is known to be beneficial for both mothers and infants. Breastfeeding is correlated with a lower risk of certain illnesses in women, such as postpartum bleeding, type 2 diabetes, breast cancer, and ovarian cancer [5]. Breast milk has the most suitable nutrients for an infant's digestive system and can reduce the risk of gastrointestinal infections, respiratory disease, asthma, and obesity [5]. Promoting breastfeeding has become one of the major initiatives in improving women's and children's health, and thus, it is fundamental to understand the factors affecting breastfeeding, especially in women undergoing cesarean sections.

Current literature has reported the prevalence of breastfeeding and the physiological factors associated with breastfeeding in women after cesarean sections. However, there is a lack of qualitative research about the factors that influence women's breastfeeding after cesarean sections. To understand the influencing factors of women's behaviors, such as choosing to or not breastfeed after cesarean sections, it is vital to go behind their behaviors and understand the decision-making process. Therefore, the purpose of this study was to explore the factors that influence women's breastfeeding behaviors after cesarean sections.

2. Material and methods

2.1. Design

This qualitative study, using a phenomenological approach and analysis, understood women's behavior choices for breastfeeding after a cesarean section. The COREQ checklist has been used for explicit and comprehensive reporting of this study [6].

2.2. Theoretical framework

The theoretical framework that inspired the study was the theory of planned behavior (TPB) [7]. The TPB assumes that intention is the premise for the beginning and continuation of behavior and three constructs that affect behavior intention: attitude, subjective norm, and perceived behavior control [7]. Attitude is an individual's evaluation of the degree to which one likes or dislikes performing a particular behavior. Subjective norms refer to the social pressure perceived by individuals when they decide whether to carry out breastfeeding. Perceived behavior control reflects individuals' perceptions of the factors that promote or hinder breastfeeding behaviors. A framework of the application of

the theory to breastfeeding is shown in Fig. 1. TPB is a theory used to help predict and explain healthy behaviors in general. In this study, the theory provided a holistic perspective to help researchers better understand the key factors influencing breastfeeding after cesarean sections. This theory inspired us to conduct this study and helped us develop interview questions to understand the participants' behaviors and decision-making processes. The results were presented in three dimensions of the theoretical framework, which helped to clarify the points about the participants' attitudes, beliefs, and behaviors.

2.3. Setting and participants

This study took place in a women and children's hospital in a coastal city of China. The hospital has 1216 beds. The hospital has an annual volume of 2.2 million outpatient visits, 60,000 inpatients, 30,000 surgical operations, and 16,000 childbirths. This study occurred in a postpartum unit of the hospital.

We used a purposive sampling method to recruit participants. The participants were women who underwent a cesarean section from July to September 2019. Inclusion criteria were that women 1) were 18 years and older; 2) had a cesarean section; 3) were able to converse during a face-to-face interview. Exclusion criteria were that women with mental disorders or severe delivery complications, such as severe postpartum bleeding or other situations requiring immediate medical rescue. Recruitment occurred on the unit, and flyers were used to introduce the study. Participants with a cesarean section were invited to participate in the study. After signing informed consent, participants joined a face-to-face interview at a place of their choice in the hospital, including the patient's room or a private room on the unit. Information saturation was used to determine the sample size.

2.4. Ethical consideration

The study was approved by the hospital's ethical committee. The participants were informed that their participation was voluntary and anonymous, and they could withdraw from the study at any time. The confidentiality of all personal information was protected throughout the study duration. Measures were taken to ensure confidentiality, such as replacing participants' names with numbers (N1, N2, N3, and so on).

2.5. Data collection

Researchers helped participants resolve breastfeeding problems throughout the study, thus establishing a trusting relationship with participants and making them aware that the purpose of the study was to improve nursing practices based on finding problems and taking effective measures to solve them. Data were collected through face-to-face interviews. Participants were given a choice to choose the time and place of their preference. In the end, all interviews were conducted in a private room in the unit, a place that prevented external interferences. Interviews were conducted by a female graduate nursing student who had been trained in conducting interviews by an instructor who specialized in qualitative research.

The research team initially formulated an interview guide. The interview questions were consistent with the theoretical elements. Researchers adjusted the interview process and questions through two pilot interviews. The theory-based interview guide and probing questions are listed in Table 1. Field notes were taken during the interviews. The interviews lasted for 30–50 min. To obtain more abundant data, we conducted repeated interviews with two of the participants, and the others declined to be interviewed again. All

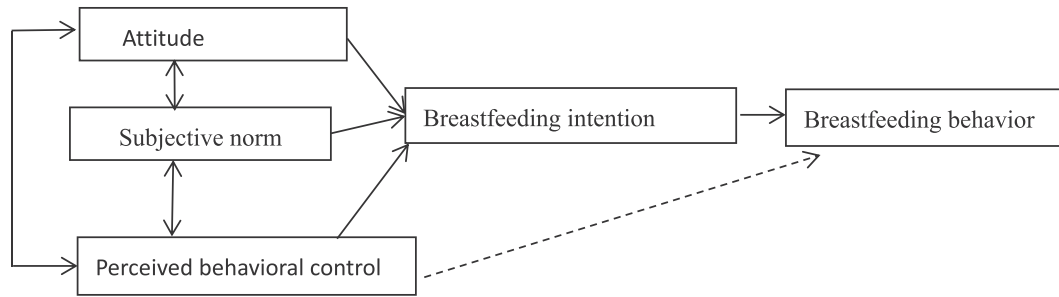


Fig. 1. A theoretical framework for the application of the theory of planned behavior to breastfeeding.

audio records and field notes were taken in the Chinese language and transcribed within 24 h, which were taken to the participants to verify the accuracy. One researcher then translated the data into the English language, and two others checked for accuracy. Participants' demographic information was received using a short questionnaire, and infant information was collected from the medical records.

2.6. Data analysis

Data were analyzed using a thematic content analysis method [8]. Two researchers familiarized themselves with the interview content through the recording and field notes, carefully read the transcript line by line, and independently generating preliminary codes. Coding differences were solved by discussion and interpretation of the original transcript. The codes were classified according to the factors that promote or hinder breastfeeding behaviors. We developed categories for subsequent transcripts using existing classifications and codes by encoding the first couple of transcripts. With a priori codes for theoretical constructs of the Theory of Planned Behavior, these codes were developed by combining deductive coding and inductive coding to fill a matrix model [9]. The research team repeatedly carried out data collection and data analysis, and thematic saturation was considered to have been achieved when no new themes or categories were identified. Representative statements were elaborated to the categories developed by the researcher to explain the opinion under each theme of the theoretical constructs.

2.7. Trustworthiness

The four criteria to increase rigor and trustworthiness of qualitative research include credibility, transferability, dependability,

and conformability [10]. Credibility ensures that the study measures the intended concept and truly reflects the participants' social realities. We promoted credibility through using carefully designed interview questions to make data represent participants' experiences, engaging participants during interviews, and conducting member checks. Transferability refers to the capability that the findings can be transferred to other settings or contexts. We used a purposive sampling method to recruit participants and described their experiences in detail to let readers decide whether the findings could be applied to their situations. To increase the dependability, which is a process to ensure the research's repeatability, we explained our methods with sufficient details to allow other researchers to repeat the work as needed. To maintain conformability, we also used field notes and audio recordings to ensure the accuracy of the data. Our research team members constantly reviewed, encoded, validated the data, and maintained a clear audit trail during the study.

3. Results

Nineteen women who underwent a cesarean section joined the study. Thirteen (68.42%) had a planned cesarean section, and six (31.58%) cesarean sections were unplanned or emergent. The demographic information of the participants is shown in Table 2. In the study, three major themes emerged: ambivalent attitude about breastfeeding, motivation to comply with traditional cultural norms, and barriers and challenges. The resultant themes and categories are displayed in Table 3.

3.1. Ambivalent attitude about breastfeeding

The participants in the study showed a mixed feeling about breastfeeding. The mixed feelings included perceived benefits, the

Table 1 Interview guide based on the theory of planned behavior.

Dimension	Description dimension	Example of questions
Attitude toward behavior	Instrumental attitude(the degree to which a behavior is thought to be beneficial)	What do you think are the advantages or disadvantages of breastfeeding/formula?
	Emotional attitude(a judgment about the pleasantness or unpleasantness of performing a behavior)	Please talk about the feeling of breastfeeding.
Subjective norm	Injunctive norms(what others think one should do)	Who or what do play important roles in breastfeeding?
	Descriptive norms (what significant others are doing)	Who influenced your idea of breastfeeding, and in what way? What other help do you need with breastfeeding?
Perceived behavior control	Behavioral control (external control, including knowledge, skills, resources, etc.)	Please talk about the feeling after the cesarean section.
	Self-efficacy(internal control, confidence)	What are the factors that make it difficult or easy to breastfeeding after cesarean section?
Probing questions		How confident are you in your choices?
		Could you please explain ... ? Could you please give an example of ... ?

reflection of responsibility, lactation deficiency, and the convenience of formula. Most participants recognized the benefits of breastfeeding, but most of the negative attitudes for breastfeeding revolved around the false belief that they did not have enough breast milk after the cesarean section.

3.2. Perceived benefits

A recurrent theme that we found from the participants was the benefits of breastfeeding, including cleanliness, nutrition, safety, and cost-saving benefits. The participants described that breastfeeding was a great way to feed their infants; human milk was hygienic and nutritious and could promote an infant's immune system. A mother mentioned: "Natural birth and breastfeeding are both based on natural principles. [Human milk] saves money and is more convenient and nutritious. It's better than any brand of milk powder or formula. Besides, there are too many bad events about milk powder." (N6) When asked about 'bad events', the participant explained that she saw the news about fake milk powder made with artificial materials, which damaged infants' health. The 'bad events' were also mentioned by several other participants as well. It was obvious that the perceived benefits of breastfeeding and human milk were a significant factor in determining whether to breastfeed their infants.

3.3. The reflection of responsibility

Participants expressed that breastfeeding made them feel a huge responsibility for their infants' health. On the one hand, they felt breastfeeding as a duty, and on the other hand, it made them feel great as a mother because of the close contact with their infants. Not being able to breastfeed left the participants feeling guilty and remorseful. One participant said: "Holding and feeding

him [the baby] was beyond words. I feel great when I breastfeed him. It made me sad if I couldn't breastfeed my baby." (N5) There is a similar opinion stated by another participant: "Maternal love is great. Even though I endure contraction pain, suckling pain, incision pain, and waking up every 2 h at night to feed the baby, I like to be a mother." (N16) Breastfeeding was a responsibility and a joy to mothers.

3.4. Lactation deficiency

Even though mothers were aware of the benefits of breastfeeding and breast milk, only six participants (31.58%) chose to exclusively breastfeed, ten (52.63%) used a mix of breast and formula feeding, and three (15.79%) selected not to breastfeed and use formula exclusively. When asked, the participants replied that they chose not to breastfeed or stop breastfeeding because they believed that the amount of human milk was not enough to meet their infants' needs after cesarean section. They expressed their opinions as: "Women with cesarean section need at least three days to recover and have milk. Because I do not have enough milk, I need to first work on promoting my milk. I must drink more soup for me to produce more milk." (N1) This participant further explained that "Women lost a lot of blood during the cesarean section and needed to go home and supplement their blood-loss with a nutritious diet, especially soup with extra liquid." (N1) The participants believed that women after cesarean section did not have enough milk, and therefore, could not start to breastfeed right away.

3.5. "Convenience" of formula milk

The participants who chose to use formula feeding believed that formula was more convenient than breastfeeding. The easy access to the formula provided many advantages for women. One participant said, "I like to use bottles to feed my baby. I know how much she

Table 2
General information of participants (n = 19).

Characteristic		n	
Age	<25	2	
	26–30	10	
	31–35	7	
Education	High school or less	3	
	Associate degree	7	
	4-year college and above	9	
Type of cesarean section	Planned cesarean section	13	
	Unplanned or emergency cesarean section	6	
Type of feeding	Mixed	10	
	Artificial feeding	3	
Infants weight(g)	Exclusive breastfeeding	6	
	<3,000	2	
	3,000–3,499	5	
	3,500–3,999	8	
Parity	≥4,000	4	
	Primipara	14	
Reason for planned cesarean section	Multipara	5	
	Estimated to be a big baby	3	
	IVF, requested C-section	1	
	Gestational age>41w	1	
	Chronic hypertension	1	
	Low amniotic fluid volume	2	
	Breech position	1	
	Gestational diabetes	1	
	Estimated to be a big baby, gestational hypertension	1	
	The fetal head does not enter the pelvis	1	
	Worry about pain during labor	1	
	Reason for unplanned or emergency cesarean section	Protracted second stage	2
		Cephalopelvic disproportion	2
A nonreassuring fetal heart tracing		2	

Note: IVF = in vitro fertilization.

Table 3
Constructs and themes of the study based on theory of planned behavior.

Theme	Categories	Subcategories
Ambivalent attitude about breastfeeding	Perceived benefits of human milk	Better than formula Feel great and fulfilled
	Responsibility of breastfeeding Lactation deficiency	Take on maternal responsibilities Cesarean section reduces lactation volume Lactation delay
	“Convenience” of formula milk	Easy access to formula Get more rest and freedom
Motivation to comply with the traditional cultural norms	Recommendation from healthcare professionals	Repeated encouragement from medical staff Conflicting advice
	Experiences and views of family members	Experiences from grandmothers Family’s confusion in breastfeeding The traditional view from older family members
Barriers and challenges	Peers’ influence	Follow the suggestions and behaviors
	Lack of knowledge and coping skills	Lack of active learning awareness Lack of relevant learning
	Pain and uncomfortable position	Incision pain Back pain Feeding position is limited and uncomfortable
	Regret and dissatisfaction	Inadequate preparation of surgery The unexpected result of delivery

drinks, and I have more freedom because my family can help me feed the baby. Also, I think my baby doesn’t like to suck the nipple after birth. I think bottle-feeding is convenient and appropriate.” (N2).

3.6. Motivation to comply with the traditional cultural norms

Participants’ motivation to breastfeed came from different aspects. A major influencer was their exposure to external norms, which affected not only women’s decision to breastfeed but also the willingness to continue. Participants’ perceptions of the external norms and the influence of family members and friends played significant roles in their breastfeeding decisions and behaviors.

3.6.1. Recommendation from healthcare professionals

The participants wanted to learn more from healthcare professionals, including nurses, physicians, lactations, and midwives. More attention and repeated reminders were effective strategies for health professionals to help women successful breastfeeding. One participant stated: *“After I came back from my cesarean section, my nurse said everything went well, which gave me a lot of confidence. I felt confident and okay to feed him [the infant].”* (N6) However, participants were confronted with conflicting information about breastfeeding from different people and aspects, leading them to suspicions and confusion about breastfeeding. *“In the delivery packages provided by various hospitals and clinics, some places required me to learn and demonstrate the preparation of milk powder. Some hospitals said that I did not need to do that. However, I did not know if I should prepare the milk powder or not. I prepared it so that I would be ready in case my baby was hungry, and I did not have enough milk.”* (N12).

3.6.2. Experiences and views of family members

Participants expressed the importance of family support in their breastfeeding journey, including decision-making and challenges that they faced about breastfeeding. A participant said, *“My families think that breastfeeding is better for my baby, they don’t support formula. However, after the cesarean section, they were worried about me and thought I was in pain, so they started using formula.”* (N15) The misconceptions of breastfeeding by family members, especially elderly family members, such as infants’ grandparents, tended to reduce maternal women’s confidence in breastfeeding. The traditional concept is that women should drink lots of greasy soup after

giving birth. The more soup that women drink after giving birth, the more milk they will produce. *“My mother thought that the baby was hungry and needed to feed formula. She said that I had no human milk at all, and all I had was water, which was not enough to feed the baby. Those words broke my confidence. My mother gave me a lot of soup, and then postpartum galactostasis happened.”* (N11).

3.6.3. Peers’ influence

When asked who influenced their feeding decisions, the participants said that their peers were influential. Colleagues and friends who had experiences with their children were considered good sources of information as they could share their knowledge and feeding experience. *“As far as I can remember, all the children around me breastfed, and all my colleagues and friends are breastfeeding their babies.”* (N5) Peers’ influence could influence women negatively as barriers. A woman said: *“My relatives and friends all fed their babies formula, and some even fed babies pure milk powder. Their children were well-fed and healthy. They also suggested that it would be easier for me to formula-feed.”* (N3).

3.7. Barriers and challenges

The participants perceived that the factors affecting their breastfeeding decisions included lack of knowledge and coping skills, pain and uncomfortable position, and regret and dissatisfaction. Participants reported difficulty in adopting a general feeding position after cesarean sections. It was equally challenging for women with cesarean sections to have the knowledge and coping skills in managing their emotional fragility.

3.7.1. Lack of knowledge and coping skills

About one-third of the participants admitted that they did not have the knowledge and skills to breastfeed. Some of the participants did not see the necessity to learn to breastfeed, and others said that they could not learn because of their work schedule conflicts. One of the participants said: *“I didn’t study or attend the pre-birth school because I was working when I was pregnant. I did not know the proper way to start breastfeeding. Then, my nipples cracked because of the baby’s sucks on the nipple. My nipples hurt very much, which made me want to give up [breastfeeding].”* (N4).

3.7.2. Pain and uncomfortable position

The incision pain and the back pain caused by postoperative anesthesia after cesarean sections added difficulties for women to care for themselves and their newborns, which affected their ability to breastfeed. They expressed their opinions as: “When I fed the baby or got up, my incision hurt very badly. I had to lie on the side for a long time. Lying down for a long time can make me tired.” (N13) “After the cesarean section, I lay on my side to feed the baby, but I was afraid he would kick me. I experienced the so-called knife-cutting pain after giving birth, which did not occur to women who underwent natural labor.” (N5).

3.7.3. Regret and dissatisfaction

In addition to physical discomfort, negative emotions can also affect breastfeeding. Participants expressed their emotional fragility after cesarean sections, which affected their interest in breastfeeding can caring for their babies. One participant stated: “After the cesarean section, I felt tired and fidgety. I began to feel annoyed by my child and cared for them without any feelings. I was in a bad mood and felt a little depressed.” (N8) Participants explained that they did not like to feel that way, but they did not know what to do.

4. Discussion

This study found that participants encountered both motivating and challenging factors for their breastfeeding after their cesarean sections. The motivation was their proudness and happiness to be with their child during breastfeeding, the perceived benefits of human milk, and support from healthcare professionals. The challenges included physical discomfort, lack of knowledge and skills, lactation deficiency, and lack of knowledge and coping skills in managing their depressive mood. There were a couple of neutral factors, such as external cultural norms and the influences of family and peers. These factors could influence women positively as facilitators or negatively as barriers. The findings can offer valuable information for healthcare professionals to help women breastfeed after cesarean sections.

4.1. Shifting negative breastfeeding attitudes

According to the theory that guided the study [7], positive attitudes help develop the intentions of behaviors but do not always direct the outcomes of the practices. The inconsistency is that women have some misconceptions and opinions, including lactation deficiency and “convenience” of formula milk. This study found that negative attitudes were more likely to lead to women not choosing or discontinuing breastfeeding after giving birth. Other research also expressed that misperception could lead to the failure of exclusive breastfeeding [11]. Prenatal attendance at breastfeeding classes was an important factor in changing negative maternal attitudes [12]. In general, current recommendations to promote prenatal learning about breastfeeding are not consistently guaranteed in prenatal services. As the women expressed in this study, a part of the reason for their knowledge and skill deficit was that they could not attend pre-birth class due to scheduling conflict with their work. A recommendation to improve women’s pre-birth class attendance and knowledge and skills about breastfeeding is to add an online teaching approach. Based on the widespread popularity of the Internet in China, “Internet + pre-birth pregnant school” can be an effective way for women to acquire knowledge during pregnancy. Based on the traditional school for pregnant women, the Internet is used as the medium for consultation, question and answer, and popularization through the WeChat platform.

4.2. Constructing supportive cultural norms

Traditional cultural norms play a crucial role in the outcome of breastfeeding. Women’s preferences for infant feeding are significantly associated with the wishes of significant others, such as spouses, mothers-in-law/mothers, and healthcare providers [13,14]. Women in this study expressed their desire to breastfeed. Still, they were misjudged by their families, especially from mothers-in-law or their mothers, which led the women to fall in doubt and struggle with breastfeeding behavior. The above may be related to traditional Chinese culture.

In Confucian-based societies, mothers-in-law and mothers are considered influential family members who have a particular influence on infant feeding decisions [15]. Family members are responsible for a large part of postnatal care, and they encourage women to adhere to traditional dietary and activity limits [16]. In China, the early postpartum period is called postpartum confinement (known as “sitting the month” or “zuo yuezi”), as a traditional birth culture, which linked to the higher utilization of cesarean section [17]. During this period, women must adhere to a set of strict guidelines to restore their bodies and observe taboos. Surgical injuries and fasting may be reasons why family members do not support breastfeeding, and they want women to have more time off.

Women’s ability to make autonomous decisions is influenced by their competence, support, nature of the setting, and available alternatives [18]. While most women were able to make decisions about breastfeeding, they were still torn between the belief that “breastfeeding is better than formula” and “following the opinions and wishes of their families”. Women are reluctant to follow wrong feeding ideas, but pressure from significant others can be powerful reinforcement [19]. A previous study showed that women mainly exposed to traditional mentoring rather than professional care providers [20]. Recent studies have confirmed that family-centered educational interventions involving spouses and mothers-in-law can improve rates of exclusive breastfeeding [21,22]. Cultural barriers to the traditional concept of breastfeeding can be overcome through family-based health education. Family members of prenatal pregnant women are invited to participate in prenatal education, conduct training on new knowledge of breastfeeding. The family members of post-natal women are involved in the breastfeeding process to increase their sense of participation and honor.

Given that the World Alliance for Breastfeeding Action (WABA) launched a “warm chain”, which advocated health care workers and different stakeholders work together to promote breastfeeding. To provide appropriate and useful guidance to women, all health care workers must have access to up-to-date information and knowledge about breastfeeding. Healthcare professionals’ collaboration and hospital environments play a significant role in supporting patients and families [23,24]. On this basis, it is necessary to improve the capacity of primary medical services by promoting the sinking of high-quality medical resources and ensure that all health care workers provide consistent and comprehensive facilitation measures. In addition to increasing support from friends, peers, and healthcare professionals, social networking norms have a significant impact on breastfeeding. Carlin et al. suggest that individual network members provide strong support to promote breastfeeding behavior [25].

4.3. Overcoming barriers and challenges

Women will become more vulnerable and face tremendous challenges when transitioning to motherhood [26]. Although early breastfeeding difficulties may arise after cesarean sections, women need to understand that these difficulties can be overcome with appropriate education and breastfeeding assistance. The

knowledge and skills of breastfeeding are not only acquired through books and learning but also in constant practice. While all women are physiologically capable of breastfeeding, not all postpartum women can successfully breastfeed. Regret and dissatisfaction may be related to inadequate surgical preparation and the expectation of natural birth, which may delay lactation. Women in this study expressed resistance to breastfeed due to pain and limited posture. “Pain” cannot provide a satisfactory breastfeeding position for infants and mothers, resulting in insufficient feeding ability [27].

Women with a cesarean section need more professional resources that can provide mental and physical support about breastfeeding, especially in the early postpartum period. The promotion of appropriate postpartum breastfeeding position is also important, such as “biological nurturing” [28,29]. Maintaining a comfortable feeding posture and faster postoperative recovery can improve lactation volume and maternal self-efficacy. Also, after cesarean section, feasible lactation auxiliary devices are an effective method to solve the feeding problem [30]. It is the future research direction to design more comfortable and practical auxiliary equipment by increasing lumbar and back support, reducing surgical incision friction or traction.

5. Strengths and limitations

It seems that the findings of this study, which provided a suitable context to conduct intervention studies, would be helpful for breastfeeding behavior among women with cesarean section and also for healthcare professionals in developing appropriate counseling and educational programs based on the constructs of the theory. While this study provided valuable information, it has limitations. Participants in a hospital setting were likely to be relatively conservative in their interviews. To help the participants become comfortable with the interviews, we tried to reduce the restrictions by providing a comfortable and private interview environment, increasing communication with women before the interview, and encouraging them to fully express themselves.

6. Conclusion

This qualitative study provides insights into the factors of breastfeeding behaviors among mothers with a cesarean section. These findings highlight gaps in existing care practices. Interventions can be designed to change women’s attitudes and behaviors towards breastfeeding after a cesarean section and close the current nursing practice gaps.

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CRedit authorship contribution statement

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Declaration of competing interest

The authors declare that they have no conflict of interests.

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Appendix A. Supplementary data

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