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Empowering breastfeeding mothers: How self-directed learning boosts confidence-unveiling the two-round Delphi method

Dewi Ariani[1,2], Respati Suryanto Dradjat[3,4], Kumboyono[5], Lilik Zuhriyah[6]
[1]Doctoral Study Program in Medical Science, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia
[2]Department of Midwifery, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia
[3]Department of Orthopaedics and Traumatology, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia
[4]Dr. Saiful Anwar General Hospital, Malang, Indonesia
[5]Department of Nursing, Faculty of Health Sciences, Universitas Brawijaya, Malang, Indonesia
[6]Department of Public Health, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

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ABSTRACT

Promoting breastfeeding self-efficacy through self-directed learning requires behavior, goal setting, and self-reinforcement. This research aims to collect insights from health professionals on strategies for improving maternal confidence in breastfeeding using self-directed learning and existing knowledge. An in-depth exploration through a two-round Delphi method rooted in the self-efficacy theory of self-directed learning for breastfeeding mothers was conducted, involving expert input and an extensive literature review. Four key documents were identified, each undergoing rigorous expert rating to ensure quality. Six essential elements for health professionals to guide breastfeeding mothers were established, focusing on lactation physiology, successful initiation, confidence building, adversity management, cultural beliefs, and public breastfeeding. Three crucial topics, including prior knowledge, personal attributes, and autonomous processes, were designed to enhance self-efficacy through self-directed learning. In conclusion, the study emphasizes the vital role of health professionals in supporting mothers through comprehensive breastfeeding guidance and encouraging self-directed learning.

Corresponding Author:

Dewi Ariani
Doctoral Study Program in Medical Science, Faculty of Medicine, Universitas Brawijaya
Veteran St., Malang, East Java 65145, Indonesia
Email: dewiariani1981@ub.ac.id

1. INTRODUCTION

Breastfeeding constitutes a critical element of newborn nourishment and overall welfare. The World Health Organization advocates for exclusive breastfeeding during the initial six months of an infant's life, with continued breastfeeding for up to 2 years [1]. Research indicates that breastfeeding self-efficacy (BSE) significantly influences postpartum breastfeeding. Research indicates a direct association between high self-efficacy, favorable breastfeeding outcomes, and prolonged breastfeeding duration [2]-[4].

In Indonesia, nearly fifty per cent of breastfeeding mothers exhibit low self-efficacy, which has a considerable impact on the success rate of exclusive breastfeeding [5]. Recognizing and bolstering maternal self-efficacy is imperative to ensure positive breastfeeding experiences. Despite its importance, exclusive breastfeeding rates in Indonesia stood at 42% in 2012 and decreased to 37.3% in 2018, underscoring the challenge of sustaining this practice. Therefore, the Indonesian government has established a national objective to attain an 80% exclusive breastfeeding rate [6].

Insufficient breastfeeding self-efficacy, coupled with inadequate support from health professionals, results in the premature cessation of breastfeeding [7], [8]. A previous study found that the design of breastfeeding education plays a critical role in enhancing breastfeeding self-efficacy, which is essential for future learning. A notable gap exists in research concerning skills-based educational training interventions aimed at equipping professionals to support breastfeeding mothers in their efforts to exclusively breastfeed effectively [9]. The absence of standardized framework guidelines and inconsistencies in breastfeeding training course content, educator qualifications, and assessment strategies hampers the potential optimization of breastfeeding education and the subsequent support provided to mothers [10]. Research conducted in the United Kingdom indicates that medical education needs to establish standards and adequate breastfeeding teaching content, necessitating the inclusion of dedicated breastfeeding courses [11].

The factors that impede optimal breastfeeding are significant, with research indicating that between 30% and 80% of mothers perceive their breast milk supply as insufficient. This perception often leads to prematurely introducing formula milk before receiving a professional diagnosis [12]. A previous study also revealed that maternal breastfeeding self-efficacy significantly influences mothers' perception of their milk supply and impacts breastfeeding duration [13]. Furthermore, studies have demonstrated that a mother's self-efficacy concerning breastfeeding substantially influences her perceptions of milk supply, affecting breastfeeding duration. Currently, only 23.3% of mothers practice exclusive breastfeeding, while cultural beliefs frequently advocate for the use of formula milk before the infant reaches six months of age [14], [15]. Additionally, negative past experiences related to exclusive breastfeeding, as well as adverse encounters with breastfeeding, can detrimentally impact subsequent efforts to achieve exclusive breastfeeding [16]. Professionals must identify these inhibiting factors to facilitate mothers' engagement in self-directed learning regarding effective breastfeeding practices.

To enable breastfeeding mothers to successfully engage in exclusive breastfeeding, they must receive support from competent health professionals who can guide them through the learning process of breastfeeding [17]. The support mothers receive during the breastfeeding process can be significantly enhanced by implementing self-directed learning initiatives. According to the Gerald Grow Model, individuals at the initial stages of self-directed learning rely significantly on educators. Educators serve as coaches in this capacity, providing essential direction regarding knowledge and skills while offering feedback to address deficiencies and overcome learning hurdles. As individuals progress to the subsequent stage of this learning process, educators must act as motivators who assist in defining learning objectives, identifying necessary learning resources, and formulating suitable learning strategies [18].

In Indonesia, the maternal and child (MCH) Handbook is a government-provided resource aimed at disseminating nutritional information and advocating for exclusive breastfeeding; however, its effectiveness in enhancing breast milk production remains limited. Further research is required to ascertain the degree to which mothers utilize this handbook for information regarding child nutrition [19]. On the other hand, the Indonesian Ministry of Health has not yet established breastfeeding guidelines for health professionals. This gap is significant given the need for a more standardized approach to lactation education in the global literature [20]. Thus, establishing these guidelines in Indonesia is of utmost importance in order to empower breastfeeding mothers, enhance their self-efficacy, and promote self-directed learning.

Health professionals should implement evidence-based breastfeeding guidelines and offer effective learning resources such as telelactation programs or informational booklets. Additionally, they should employ effective learning strategies, which may include individual or group classes or a combination of both, to enhance self-directed learning motivation among breastfeeding mothers. Health care providers are required to offer evidence-based guidance on breastfeeding and deliver effective breastfeeding learning resources such as telelactation services and [17], [21] informative booklets [22]. Implementing effective learning strategies, including individual and group classes or a combination, enhances self-directed learning motivation among breastfeeding mothers [23]. Health care providers are required to offer evidence-based guidance on breastfeeding and deliver effective breastfeeding learning resources, such as telelactation services and informative booklets.

During the engagement phase of the self-directed learning model, breastfeeding mothers exhibit autonomous processes such as planning and monitoring [18]. For instance, mothers must establish a plan to breastfeed their infants for up to six months exclusively. A systematic review has indicated that dairy interventions, utilizing websites, mobile applications, and computer kiosks for monitoring breastfeeding activities, effectively assist mothers in recording breastfeeding frequency, which typically ranges from eight to twelve times daily [24]. Health professionals must recognize and comprehend a mother's intentions and efforts to provide personalized support and guidance throughout this independent breastfeeding journey.

It is essential for breastfeeding mothers to develop self-directed learning skills to achieve an adequate supply of breast milk and ensure successful exclusive breastfeeding. Implementing well-designed and effective breastfeeding educational guidelines can help increase breastfeeding self-efficacy. In Indonesia, despite the promotion of exclusive breastfeeding, the absence of standardized breastfeeding guidelines

present obstacles to empowering breastfeeding mothers, leading to low exclusive breastfeeding rate. This research endeavor seeks to elicit insights from health professionals on strategies to bolster maternal confidence in breastfeeding through self-directed learning and to gauge their current comprehension using the two-round Delphi method.

2. METHOD

The research involved two rounds of the Delphi method to address issues related to the self-efficacy model based on self-directed learning for breastfeeding mothers through the involvement of health professionals. The Delphi method, a widely used forecasting approach, aims to achieve consensus among experts on unresolved issues. A systematic process established a variable pool, including concept analysis, open-ended questions, and a thorough literature review [25]. The conceptual model for understanding self-directed learning encompassed prior knowledge, personal attributes, autonomous processes, and guidelines for structuring a learning experience. Additionally, a comprehensive search of electronic databases was undertaken, focusing on relevant keywords and specific databases. To comprehensively explore the self-efficacy model within the context of self-directed learning for breastfeeding mothers, a systematic search of electronic databases was conducted from inception to May 3, 2023. The databases included PubMed, Web of Science, and Scopus. The search strategy encompassed the title and abstract fields. It involved the keywords: (breastfeeding OR breastfeed OR lactation) and (breastfeeding self-efficacy OR self-efficacy) and self-directed learning OR self-regulation) OR (attribute personal OR autonomous process) OR (health professionals) OR (empowerment). Schwartz (1990) and Hofstede (2001) were early contributors to defining Asian community cultures.

Given the cultural similarities between Thailand and Indonesia, the researchers utilized the sub-themes and goal structure within breastfeeding instruction in Thailand as a reference framework for developing breastfeeding guidelines for health professionals to guide mothers toward self-directed learning [26]. Furthermore, the primary term "breastfeeding" was searched on websites such as WHO, The New York City Mother Guide to Breastfeeding Prenatal Curriculum, In Discharge Planning and Teaching in Maternal Newborn Nursing, Queensland Clinical Guide, Project Ontario, breastfeeding.id, Breastfeeding Protocol for Health Care Provider Toronto Public Health, Derbyshire Healthcare, and BC Women's Hospital Healthcare [27]-[34].

The research process involved drafting a variable pool, whereby the results of an open-ended self-efficacy model based on self-directed learning for breastfeeding mothers and a literature review were synthesized. Primary variables were formulated, including health professionals guiding breastfeeding, prior knowledge, personal attributes, and autonomous processes. Tertiary indicators were then derived from previous research findings. The indicator pool underwent modifications through research group meetings until a consensus was reached.

2.1. Conducting a panel of Delphi experts

The Delphi method is widely acknowledged for its ability to establish consensus on unresolved issues. This research used the Delphi method to develop a self-efficacy model for self-directed breastfeeding education. This approach underscores the essential role of health professionals in providing comprehensive breastfeeding guidance and promoting self-directed learning to support mothers effectively. It was imperative to enlist competent experts to uphold the integrity of the Delphi consultation process. Panelists were required to fulfil specific criteria: i) possession of a senior professional degree, a master's degree, or a higher academic qualification; ii) a minimum of five years of experience in practical application, teaching, or research; iii) expertise in breastfeeding; and iv) voluntary commitment to participating in a minimum of two rounds of expert consultation. Individuals meeting the first three criteria were approached and provided with an overview of the study's objectives, significance, and prospective roles. Those in agreement were subsequently invited to become part of the panel. In line with the precedent set by previous studies [35], [36], 20 experts were engaged as panelists in this study.

2.2. Implementing the Delphi expert consultation

The expert consultation process involved sending individual questionnaires via Google Forms to Delphi panel members who were unacquainted with each other. The research group carefully analyzed the experts' feedback and adjusted the indicators to meet retention criteria, creating a new questionnaire. This new questionnaire was then distributed, and each round of consultation had a two-week interval. The study conducted two rounds of Delphi expert consultations from May to November 2023, repeating the process until expert opinions were aligned.

The preliminary consultation questionnaire consists of three sections aimed at gathering comprehensive information. Introduction to the current study: i) This section provides a detailed study background, including its purpose, theoretical framework, and fundamental concept; ii) Expert authority details: This section collects general information and professional particulars about the experts involved in the study, encompassing their gender, age, level of education, years of experience, and primary areas of expertise; iii) Open-ended questionnaire consultation: This section organizes responses using common keywords or themes. By analyzing these findings and conducting an extensive literature review, we can identify topics that require specific attention during the research on breastfeeding self-efficacy (BSE).

During the second round of Delphi expert consultation, the questionnaire reintroduced the study, encompassing its background, significance, purpose, theoretical model, and concept. A semi-open consultation form was employed to evaluate the importance of all level indicators, using a 5-point Likert scale, ranging from 'very important' (5 points) to 'very unimportant' (1 point). Additionally, blank sections were provided alongside each indicator to allow experts to exercise their discretion and offer recommendations as deemed necessary.

Communication was facilitated through a Google form, with reminders disseminated via WhatsApp and telephone at each round. The research received approval from the Ethical Committee of the Faculty of Medicine, University of Brawijaya, Malang, with reference letter 637/UN 10.F08.11.31/PP/2023.

2.3. Statistical methods

SPSS version 24.0 was used to analyze descriptive statistics. Throughout the study, items were added to the topic list automatically if 70% or more participants rated them as “important.” Conversely, items were excluded from the list automatically if 70% or more participants deemed them “unimportant.” Items without a consensus among participants were revised based on their feedback and put to another vote during the third round of the study.

3. RESULTS AND DISCUSSION

The study findings present Table 1, which provides an overview of the demographics and expertise of the experts who participated in the Delphi rounds. Furthermore, Table 2 (see in Appendix) delineates the four dimensions of the self-efficacy model grounded in self-directed learning. Figure 1 visually depicts the self-efficacy model based on self-directed learning specifically tailored for breastfeeding mothers.

Table 1. Characteristics of the experts participating in the Delphi rounds

Variables	Round 1 N=21						Round 2 N=20					
	Midwife	Nurse	Physician	Pediatric	Midwife lecturer	IBCLC	Midwife	Nurse	Physician	Pediatric	Midwife lecturer	IBCLC
Age (yrs)												
25-35	6		1		2		6		1		2	
36-45	3	3		1	2	1	3	3		1	2	1
46-60	1			1			1					
Length of career (yrs)												
5-10	7	1	1	2	2	1	7	1	1	1	2	1
6-29	3	2			2		3	2			2	

Twenty-four experts were invited to the Delphi study, but only 21 enrolled (83.3%). In the second round, 95% (20/21) participated. The experts were various stakeholders in increasing self-efficacy based on self-directed learning for breastfeeding mothers. The final result from two rounds was formalized into a self-efficacy model based on self-directed learning for breastfeeding mothers, i.e., health professionals guide breastfeeding, prior knowledge, personal attributes, and autonomous processes, as shown in Figure 1.

3.1. Health professionals guide breastfeeding

Breastfeeding is an essential aspect of a mother's life, and guidance from a health professional can significantly improve a mother's breastfeeding self-efficacy and self-directed learning abilities. Experts have identified seven critical topics related to breastfeeding through a synthesis of journals, literature books, and expert opinions in the first round. These topics include breastfeeding as the best option, Lactation Physiology, starting well, building confidence, managing tough times, culture and myths in Indonesia, and breastfeeding in public. While all topics were considered essential and agreed upon by more than 70% of participants, the use of galactagogues (drugs that stimulate breast milk production) as a part of lactation

physiology was only supported by 67% of participants and was therefore excluded from the guide topic. Experiential learning in breastfeeding has been found to enhance the skills of health professional students in providing breastfeeding support. The study's findings indicate that pediatricians and midwives support maternal and child health, particularly breastfeeding. Their involvement is essential for promoting effective maternal and infant health practices. The study results state that pediatricians and midwives play an important role in supporting maternal and child health [37], particularly breastfeeding [38]. A focused approach to structured breastfeeding curricula and direct clinical experiences has demonstrated positive outcomes in improving student knowledge and attitudes. It is imperative to prioritize integrating high-quality breastfeeding education within undergraduate healthcare programs while integrating interprofessional experiences and cultural diversity [8], [20].

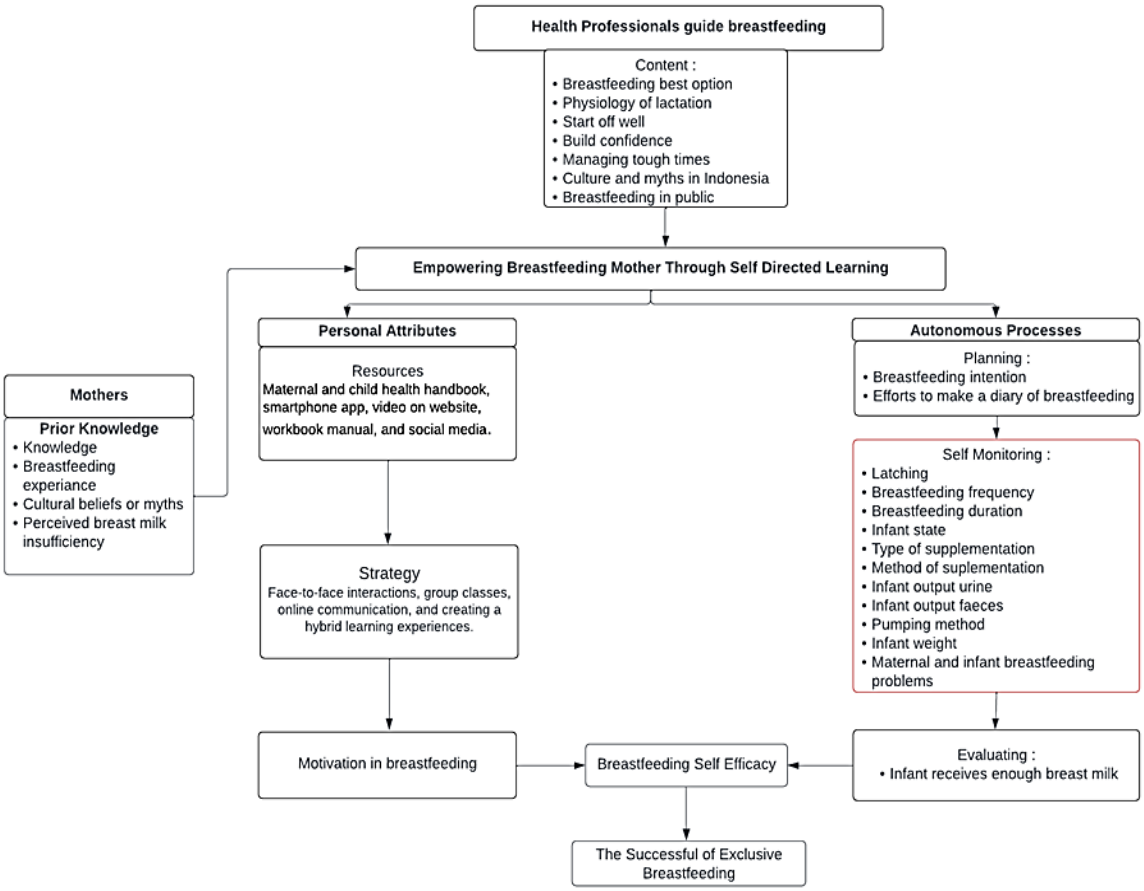

Figure 1. Self-efficacy model based on self-directed learning for breastfeeding mother

3.2. Prior knowledge

Prior knowledge is a crucial factor for breastfeeding mothers who want to improve their self-efficacy through self-directed learning. We must understand the breastfeeding experience, knowledge, culture, myths, and perceptions of insufficient breast milk to achieve this goal. Experts recommend having a score of over 70% in these areas. Therefore, identifying one's prior knowledge is critical when preparing for self-directed learning about breastfeeding. Leveraging prior knowledge is fundamental for learners to take control and oversee their learning process independently, often called self-directed learning [18], [25].

Research indicates that mothers with previous breastfeeding experience are often more successful in subsequent breastfeeding attempts. This prior experience may enhance confidence and skills, which can facilitate the management of breastfeeding challenges [39]. Approximately 50% of breastfeeding mothers reported a perception of insufficient breast milk, which was found to be strongly associated with low breastfeeding self-efficacy. Additionally, the perception of inadequate breast milk displayed a moderate correlation with poor breastfeeding attachment skills, the establishment of breastfeeding plans, and the introduction of formula supplementation. A descriptive analysis revealed that infant crying was often

interpreted as an indication of insufficient breast milk, contributing to the notion that infants were not receiving adequate nourishment [12]. Furthermore, cultural traditions surrounding exclusive breastfeeding practices following childbirth, the introduction of supplementary foods, breastfeeding challenges, and supportive cultural aspects for exclusive breastfeeding in Bali, Indonesia, warrant careful consideration by healthcare professionals and religious leaders to enhance adherence to exclusive breastfeeding practices [40]. Health professionals must design breastfeeding education programs that effectively identify hindering and facilitating factors related to self-directed breastfeeding learning.

3.3. Personal attributes and self-directed learning

Identifying personal attributes is crucial for successful breastfeeding self-efficacy based on self-directed learning. Experts suggest breastfeeding mothers should be aware of learning resources, learning strategies, and motivation to facilitate self-directed learning. According to the consensus of experts, personal attributes play a vital role in enhancing breastfeeding self-efficacy and the success of self-directed learning. More than 70% of experts consider individual characteristics crucial for promoting successful breastfeeding and self-directed learning. Personal attributes play a crucial role in self-directed learning theory, impacting learners' motivation, accountability, utilization of resources, and cognitive strategies. Recognizing the diversity in learners' self-direction and effectively navigating online learning environments is paramount. Employing effective strategies to surmount obstacles and acquire credible information is imperative. Learning strategies, reflective writing, communication techniques, time management, and motivation are all indispensable in online education. Succeeding in online learning necessitates learners to take charge of their pace, monitor comprehension, and efficiently leverage resources. Developing strategies to address online education's distinctive challenges is imperative for success [18], [25].

In Indonesia, the internet usage rate among women has reached 49.1% [40], presenting a significant opportunity to enhance self-directed learning (SDL) concerning the personal attributes of mothers. Breastfeeding mothers can improve their SDL by critically comparing information acquired from social media platforms, such as Facebook, online videos, podcasts, and emails, with guidance received from health professionals [41]. Furthermore, it is essential to utilize effective communication channels to disseminate breastfeeding-related information, including various multimedia platforms. This SDL approach aims to clarify the diverse sources of breastfeeding information [42]. Health professionals should focus on developing accurate and reliable informational resources through telelactation services, breastfeeding booklets, and social media platforms, all accessible to breastfeeding mothers, enabling them to educate themselves on optimal breastfeeding practices [21], [22].

Health professionals facilitate effective breastfeeding education strategies for breastfeeding mothers, utilizing individualized instruction, group sessions, and a hybrid approach that combines individual and group learning experiences. The primary objective of self-directed learning is to empower individuals to cultivate intrinsic motivation, establish personal goals, assess their progress, and identify valid and reliable educational strategies and resources [23], [18].

3.4. Autonomous processes in self-directed learning

Autonomous processes in self-directed learning are stages where individuals can identify and set learning goals, plan activities to achieve goals, and learn independently according to learning needs [18]. Breastfeeding mothers to be able to self-directed learning breastfeeding need to be taught how to assess effective LATCH [43], evaluate the frequency of breastfeeding 8-10 times per day [24], empty the breasts requires routine frequency and duration of breastfeeding, which will increase breast milk production, especially in the first month to get enough breast milk [12], [44], if the mother is worried that her baby is not getting enough breast milk. Health professionals need to teach the mother to evaluate the number of wet diapers and stools per day as valid parameters in measuring the adequacy of breast milk [12], [45]. In addition to this, health professionals may utilize an additional diary design for documenting breastfeeding data, as it has demonstrated effectiveness in enhancing the intensity of breastfeeding practices [24]. Insufficient breast milk is a source of concern for mothers when breastfeeding and requires proper assessment as the key to successful breastfeeding. Breastfeeding support in the first week of breastfeeding needs to be a concern for professional staff in maintaining stimulation of the breast milk supply to prevent the provision of formula milk and the perception of insufficient breast milk [12].

Only 5% of breastfeeding mothers experience insufficient breast milk supply due to pathological disorders [12], [46]. Generally, formula feeding is more prevalent among families with higher economic status, infants whose mothers are not in the home, and those without siblings. It is essential to enhance the knowledge of mothers and families regarding the significance of breast milk for the development and growth of infants, as well as to mitigate healthcare costs [47]. Direct breastfeeding at the breast fosters a higher sensitivity between mother and infant, at least in the short term, compared to bottle feeding [48]. Research indicates that transitioning to the syringe feeding method significantly improves breastfeeding success rates,

reduces heart rates, prevents nipple confusion, and facilitates a faster adaptation to breastfeeding at the breast in preterm infants [49]. The employment of nipple shields immediately following birth, the use of pacifiers, and the perception of inadequate breast milk supply contribute to the low rates of exclusive breastfeeding in the United States [50]. For mothers unable to breastfeed directly, using breast pumps can be an effective alternative for maintaining exclusive breastfeeding duration; however, further investigation is necessary to understand the context and implications of pumping on subsequent breastfeeding outcomes [51]. Mothers who establish a strong breastfeeding attachment are associated with enhanced growth in low birth weight (LBW) infants and increased exclusive breastfeeding rates [52]

The systematic review findings indicate that various breastfeeding challenges are prevalent among individuals seeking support. Notable issues include: i) Experiences of breastfeeding difficulties at a rate of 24.5%; ii) Perceptions of insufficient breast milk and inadequate weight gain in infants at 15.7%; iii) A lack of knowledge and experience related to breastfeeding at 17.8%; iv) Anatomical concerns such as flat, hollow, or small nipples at 7.7%; v) Additional complications reported include breast pain at 3.9%, engorgement and fullness of the breasts at 10.8%, erythema of the breasts at 26.1%, and mastitis at 5.6% [53].

Health professionals need to possess the necessary breastfeeding competencies to develop education programs tailored to these identified needs. Such programs should provide adequate support that promotes self-directed learning in breastfeeding practices. Sufficient breast milk production positively correlates with enhanced breastfeeding self-efficacy and an extended duration of exclusive breastfeeding [12].

4. CONCLUSION

In conclusion, providing health professionals with comprehensive guidance on breastfeeding is imperative to bolster their self-efficacy in this domain. This process should be underpinned by self-directed learning. Cultivating self-directed learning among health professionals has the potential to enhance their personal attributes and independent processes, thereby positively impacting the experiences of breastfeeding mothers. Through self-empowerment, breastfeeding mothers can attain the skills and knowledge to effectively nurture their infants, address challenges, and access appropriate support and assistance. Several preparatory measures must be undertaken to engage in SDL regarding breastfeeding effectively. These measures include training breastfeeding facilitators, evaluating the readiness of individuals to learn about breastfeeding, and developing educational materials tailored explicitly to SDL. It is essential to create validated SDL breastfeeding modules and to implement effective learning strategies that cater to the unique needs of breastfeeding mothers. Additionally, it is necessary to prepare the relevant learning resources to support the implementation of SDL and establish breastfeeding support groups. Furthermore, the assessment of knowledge, skills, and the achievement of SDL competencies related to breastfeeding must be conducted. The evaluation of SDL-centric breastfeeding education should involve obtaining feedback from breastfeeding mothers, professionals, and stakeholders throughout the process. This should encompass both the results and the overall assessment of the SDL breastfeeding initiative, alongside the implementation of quality assurance measures to ensure educational effectiveness. To practice self-directed learning of breastfeeding, preparations are needed, such as training of breastfeeding facilitators, assessment of readiness to learn to breastfeed, breastfeeding materials focused on SDL, development of validated SDL breastfeeding modules, effective learning strategies that are appropriate to the needs of breastfeeding mothers, preparing breastfeeding learning resources needed for the implementation of SDL, formation of breastfeeding support groups, assessment of knowledge, skills and acquisition of SDL breastfeeding abilities, evaluation of SDL-based breastfeeding education by providing feedback from breastfeeding mothers, professionals and stakeholders in the process, results and assessment of SDL breastfeeding, and conducting quality assurance.

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APPENDIX

Table 2. The four aspects of the self-efficacy model based on self-directed learning

Variables	Item topics	Consensus level
Health professionals guide breastfeeding	a. Breastfeeding the best option, including	100%
	- Breastfeeding provides optimal nutrition and health benefits for infants.	
	- Breastfeeding is a natural process that promotes bonding and good health for mother and baby.	100%
	- Breast milk every day.	100%
	- Breast milk is different from formula milk.	100%
	- Mothers benefit from breast milk as it helps the body recover after pregnancy, reduces postpartum bleeding, and lowers the risk of diabetes, ovarian cancer, and breast cancer.	100%
	- Breastfeeding is a cost-effective and pain-reducing practice that can help people miss less work or school.	94%
	b. Physiology of lactation	100%
	- Breast milk comprises various nutrients, including proteins, fats, carbohydrates, vitamins, and minerals, essential for a baby's growth and development.	
	- Breast milk contains colostrum, which provides essential nutrition and has a distinct color and content.	100%
	- The hormones prolactin and oxytocin influence the breastfeeding process.	100%
	- The amount of breast milk a mother produces is based on the size of her baby's stomach, which increases as the baby grows.	100%
	- Knowledge of lactogenesis.	94%
	- The use of galactagogues refers to using drugs that stimulate breast milk production.	67%, excluded
	c. Start well	100%
	- The Initiation of breastfeeding	
	- Positioning and latching	100%
	- Routinely breastfeed newborns 10-12 times within the first week, then 8-10 times daily; active breastfeeding lasts 10-40 minutes.	100%

Table 2. The four aspects of the self-efficacy model based on self-directed learning (continued)

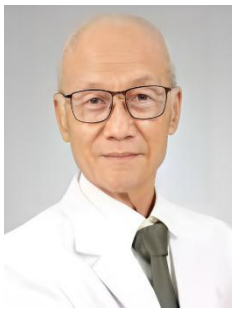
Variables	Item topics	Consensus level
	d. Build confidence	100%
	- It is possible to breastfeed in various conditions, such as after a cesarean section, with the proper medication prescribed by a doctor, and after consulting with them. Breastfeeding is also possible after breast surgery, even if the mother has experienced hepatitis A, B, or C. It is also possible to breastfeed with pierced nipples, sore or bleeding nipples, inverted nipples, or pop-out nipples. However, occasional alcohol consumption and smoking by the mother can affect the milk quality. It is always advisable to consult with a doctor or lactation consultant for any concerns or questions regarding breastfeeding.	
	- It is prohibited to breastfeed if you have HIV or HTLV virus disease, use illegal drugs, undergo cancer chemotherapy, are radioactive, or have active tuberculosis.	100%
	- LATCH scores are a valuable tool to evaluate the quality of a breastfeeding latch.	94%
	- Breastfeeding can be challenging for new mothers, but they can receive support from various sources, such as lactation counselors,	100%
	- We assist breastfeeding mothers by providing emotional and practical support through husbands, grandmothers or in-laws, friends, or neighbors, such as helping to care for the baby, helping with housework, avoiding negative comments, praising breastfeeding, and encouraging joining an exclusive breastfeeding community.	100%
	e. Managing tough times	100%
	- When experiencing stress while breastfeeding, including pain and discomfort, difficulties with latching, and the emotional toll it can take on the mother, the essay could also suggest different strategies for overcoming these challenges, such as seeking support from health professionals or joining a breastfeeding support group.	
	- Some women can breastfeed their babies directly, while others cannot.	100%
	f. Culture and myths in Indonesia	89%
	- Breastfeeding is often surrounded by myths and misconceptions, which can be harmful or misleading. It is essential to provide evidence-based information to debunk common myths, such as the idea that breastfeeding is always painful or that formula is just as good as breast milk. Clarifying these misunderstandings can help new mothers make informed decisions about their infant's feeding.	
	- Local beliefs and practices refer to the customs, traditions, and values unique to a particular community or region. These beliefs and courses are often passed down from generation to generation and play a significant role in shaping a community's cultural identity.	94%
	- Cultural change	83%
	g. Breastfeeding in public spaces	94%
	- Protocol to manage breastfeeding in the workplace.	
	- Protocol to expressing breast milk and storing it properly.	100%
Prior knowledge in learning breastfeeding	a. Identify previous breastfeeding experiences, whether positive or negative.	100%
	b. Identify knowledge deficits related to not reading.	94%
	c. Identify breastfeeding culture/myths	100%
	d. Identify perceived breast milk insufficiency	94%
Personal attributes of breastfeeding mothers	a. Identify the ability to find independent learning resources about breastfeeding (active and passive) through the smartphone-based app, video through the website, module through WhatsApp, booklet manual, and social media.	89%
	b. Identify the desired breastfeeding learning strategy (face-to-face, group class, and hybrid approach involving both in-person interactions and online communication).	94%
	c. Identify motivation for breastfeeding	94%
Autonomous process for breastfeeding mothers	Planning	
	a. Identify breastfeeding intentions	100%
	b. Identify effort to fill in a daily diary/schedule.	81%
	Self-monitoring (self-directed learning)	100%
	a. Identify latching	
	b. Identify the frequency of breastfeeding	100%
	c. Identify the duration of breastfeeding on one breast	100%
	d. Identify the condition of a baby crying because he is thirsty for breast milk or something else.	100%
	e. Identify the mother's choices when she is not with the baby, whether to choose expressed breast milk or donor breast milk.	100%
	f. Identify giving bottles to the baby when not breastfeeding directly, but using a cup feeder or supplemental nursing system is recommended	83%

Table 2. The four aspects of the self-efficacy model based on self-directed learning (continued)

Variables	Item topics	Consensus level
	g. Identify the color and frequency of urine output to determine signs of adequate breast milk.	100%
	h. Identify the faces' color, frequency, and consistency to determine signs of sufficient breast milk.	100%
	i. Identify the method and amount of breast pumping, including hand expression, hospital grade electric pump, mid-size automatic electric piston pump, portable automatic electric diaphragm pump, small motorized single pump, and hand pumps.	83%
	j. Identify baby's weight gain	94%
	k. Breastfeeding may present difficulties for mothers and infants.	94%

BIOGRAPHIES OF AUTHORS

Dewi Ariani is a lecturer in midwifery at the University of Brawijaya, Malang, Indonesia, where she oversees a doctoral program. Her research interests lie in breastfeeding, with a particular focus on self-directed learning as a means to enhance breastfeeding self-efficacy in Indonesia. She has a commitment to advancing maternal and child health knowledge and nurturing future health professionals. She can be contacted at email: dewiariani1981@ub.ac.id.



Respati Suryanto Dradjat is an esteemed professor of orthopedics and traumatology in Indonesia, recognized for his extensive contributions to the medical community. He graduated from Universitas Indonesia in 1980, obtaining his specialist and doctoral degrees from the same esteemed institution. In 2008, Professor Respati was appointed a professor at Universitas Brawijaya, specializing in trauma management in orthopedic emergencies. Furthermore, he has held prominent positions in various hospitals and significantly contributed to orthopedic trauma care research. He can be contacted at email: respatisdradjat@ub.ac.id.

Kumboyono is a lecturer who conducted extensive research as a nursing lecturer specializing in community and human behavior. He has made substantial contributions to his field through many scholarly articles published in nationally accredited journals and esteemed international publications. His research interests are diverse, encompassing topics such as the effects of smoking on vascular health, the role of psychoeducation in enhancing caregiver self-efficacy in the prevention of coronary heart disease, and the impact of cognitive-behavioral therapy on online gaming addiction among adolescents. He can be contacted at email: abu_hilmi.fk@ub.ac.id.

Lilik Zuhriyah is a distinguished lecturer specializing in public health, focusing on extensive research in environmental and social domains. She has made a substantial contribution to the field of public health literature as a co-author of a book focused on community health assessments and as a contributor to a publication addressing rainwater harvesting as an environmental solution. She spearheads community initiatives, including implementing rainwater harvesting systems in Arjosari Village, to address water scarcity and promote sustainability. Her efforts exemplify a solid commitment to enhancing health outcomes and fostering environmental sustainability through education, research, and active community engagement. She can be contacted at email: lilikz.fk@ub.ac.id.