Comparison of Health Literacy of Mothers with Preterm and Full-term Birth in Exclusive Breastfeeding and Related Factors

ABSTRACT

Background and Objectives: Enhancing women's health literacy leads to a better understanding of health information and can directly influence child nutrition and health throughout the developmental years. This study compared the health literacy of mothers with preterm and full-term births regarding exclusive breastfeeding and related factors among those attending healthcare centers in the Mashhad districts.

Materials and Methods: This cross-sectional study was conducted in 2023 on 648 women with children under two years of age who attended health centers in Mashhad, Iran. Participants were selected using proportional random sampling. Data were collected through validated and reliable questionnaires assessing demographic characteristics, the Labbok breastfeeding levels questionnaire to assess breastfeeding status, and maternal health literacy. Data analysis was performed using SPSS version 25, employing the Kolmogorov-Smirnov test, Chi-square test, independent t-test, one-way ANOVA, Mann–Whitney U test, and Kruskal–Wallis test, with a significance level set at $p < 0.05$.

Results: The mean score of total health literacy as well as its domains of auditory comprehension and self-management among mothers with preterm and full-term deliveries was (39.5 ± 9.6, 27.7± 6.8, 11.7 ± 3.4) and (42.1 ± 8.50, 29.7 ± 6.0, 12.3 ± 2.8), respectively. A statistically significant difference was observed between the two groups in terms of health literacy level and exclusive breastfeeding practices ($p < 0.05$). In addition, maternal occupation, educational level, economic status, family support, number of pregnancies, residence, and infant growth status were significantly associated with maternal health literacy ($p < 0.05$).

Conclusion: The results indicated that health literacy among mothers of preterm birth was lower than that of mothers with full-term birth, and this group was less likely to practice exclusive breastfeeding. Therefore, developing targeted educational interventions—such as breastfeeding counseling and health literacy training focused on neonatal care—may help improve feeding behaviors and promote the health of preterm birth.

Paper Type: Research Article

Keywords: Full-Term Birth, Preterm Birth, Exclusive Breastfeeding, Maternal Health Literacy, Mothers.

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Introduction

Breast milk is undoubtedly one of God's greatest and most unparalleled blessings—granted by the Almighty, the Omnipotent, and the All-Knowing. It is perfectly designed to meet all the needs of a newborn who is entirely dependent and vulnerable at birth. During the first two years of life, it is, the safest, healthiest, freshest, most accessible, and most complete form of nutrition for an infant (1). Despite remarkable scientific advancements, researchers have still been unable to create a substitute that matches its composition. Breastfeeding is recommended as the gold standard by the World Health Organization (WHO). According to UNICEF findings, more than 3,000 children die every day due to infectious diseases linked to bottle-feeding and formula use, and an estimated 1.5 million children lose their lives each year because they are not breastfed (2). Statistical evidence indicates that despite WHO recommendations, in many parts of the world, most women stop breastfeeding before their child reaches between 6 and 12 months (3).

According to the World Health Organization, a preterm birth (PB) is defined as a baby born before 37 completed weeks of gestation (fewer than 259 days from the first day of the mother's last menstrual period) (4-6). Due to the underdevelopment of vital organs and bodily systems, these infants have distinct nutritional and medical care needs compared to full-term birth (FB). Studies have shown that the continuation of breastfeeding among PB is significantly lower than that of FB (7). However, breastfeeding plays a crucial role in the nutritional, gastrointestinal, immune, developmental, and even psychological health of PB (4). Despite this, breastfeeding in this group often faces challenges such as the infant's inability to suck effectively or maternal concerns about the adequacy of breast milk (5).

Various studies have shown that, in addition to the inherent challenges associated with prematurity, factors such as mothers' lack of confidence in their milk supply, misconceptions, lack of awareness, and low health literacy play a significant role in the early discontinuation of breastfeeding among these mothers (1, 8). Maternal health literacy can play a crucial role in the initiation and continuation of breastfeeding. Maternal health literacy refers to a woman's ability to apply social and cognitive skills—shaped by her experiences—to access, understand, and evaluate health information for the purpose of improving her own health and that of her child. Health literacy involves not only reading and writing skills, but also the capacity for critical evaluation, informed decision-making, and behavioral change in health-related situations. It is important to note that health literacy is not solely determined by a person's general educational level or basic reading ability (9, 10). Maternal health literacy can play a significant role in improving the health outcomes of PB by helping to prevent hospital readmissions (11, 12). Low health literacy is a common issue, even in economically developed countries. According to a recent report by the European Health Literacy Survey (EU-HLS), 47% of participants were found to have limited health literacy. A study by Elizabeth Enlow and colleagues at the University of Pennsylvania revealed that nearly one-third of parents of PB have limited health literacy,

many struggle to answer questions related to basic caregiving tasks for their premature babies. In Iran, as well, a study conducted across five provinces found that only 28.1% of participants had adequate health literacy (13, 14).

Maternal health literacy plays a key role in shaping infant nutrition and health outcomes, as it directly influences dietary choices, feeding practices, and the ability to understand and apply health information (15). Recent evidence suggests that higher levels of maternal health literacy are associated with healthier dietary patterns, more favorable feeding behaviors, and improved growth indicators in children, including appropriate birth weight and height (16). Furthermore, mothers with adequate or high health literacy often maintain better nutrition during the preconception and pregnancy. They are more likely to adopt healthier lifestyles, leading to better health outcomes in their infants (17).

Despite growing evidence on the impact of maternal health literacy on infant feeding and health outcomes, most previous studies have not adequately considered the differences between FB and PB (17, 18). Preterm infants (PB) have distinct nutritional requirements and face higher risks of morbidity and developmental complications compared to full-term infants (FB). Early initiation and sustained breastfeeding, especially among PB, have been shown to significantly reduce these risks and promote better long-term developmental outcomes (19). These factors underscore the critical need for a comparative investigation of maternal health literacy and feeding practices between mothers of full-term infants (FB) and preterm infants (PB). Therefore, this study aimed to compare the health literacy of mothers with FB and PB in exclusive breastfeeding and associated factors among mothers attending healthcare centers in districts covered by Mashhad. By identifying differences and challenges in health literacy and feeding practices within these groups, the researchers intend to inform targeted educational interventions, improve caregiving and counseling services, and support policy development to enhance infant nutrition, particularly for the vulnerable PB population.

Materials and Methods

Study Design and Participants

This cross-sectional study was conducted between April and June 2023 on a sample of 648 women residing in Mashhad and its affiliated surrounding cities, all covered by Mashhad's healthcare system. The study population consisted of mothers with children under two years of age living in these regions.

The inclusion criteria for the study were: residency in Mashhad or its surrounding healthcare-covered areas, Iranian nationality, mothers with infants under two years of age, absence of any oral or tongue disorders in the infant that could affect breastfeeding (such as glossitis, short frenulum, cleft palate and lip), no hospitalization of the mother or infant during infancy, no separation between mother and infant in the first days after birth, and absence of infant diseases such as galactosemia, cleft lip and palate, Down syndrome, and other congenital or metabolic disorders that would prevent breastfeeding. Additionally, mothers with no specific illnesses—including HTLV1/2, HIV, diabetes,

hypertension, cancer, untreated active tuberculosis, breast cancer under treatment, mothers of unvaccinated infants, hepatitis B infection, breast burns, or breast abnormalities interfering with milk production—were included. Exclusion criteria included incomplete questionnaire responses and unwillingness to continue participation in the study.

The sample size was calculated to be 661 participants, taking into account the percentage of exclusive breastfeeding (with an approximate ratio of p=0.5), a standard error of d=0.04, and a maximum dropout rate of 10%.

$$n = \frac{(z_{1-\alpha/2})^2 p(1-p)}{d^2}$$

A proportional random sampling method was employed in this study. Initially, some health centers were randomly selected from Mashhad and its affiliated urban areas under the jurisdiction of Mashhad's public healthcare system. Each selected center was allocated a sample quota proportional to the total sample size, based on the number of households it served. Subsequently, individuals registered in the electronic health information system were assigned unique identification codes. Using random number generation in Microsoft Excel, eligible participants who met the inclusion criteria were selected through simple random sampling within each center's assigned quota.

Selected individuals were contacted by phone and provided with information regarding the study's objectives. Those who agreed to participate were invited to their respective health centers on a scheduled date. Data were collected through face-to-face interviews, during which trained interviewers administered structured questionnaires. All ethical considerations were observed in accordance with the principles of the Declaration of Helsinki. Participants were informed about the study's objectives, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. Informed consent was obtained before data collection. All collected data were anonymized, kept confidential, and used solely for research. This study was approved by the Ethics Committee of Mashhad University of Medical Sciences, under the code IR.MUMS.FHMPM.REC.1402.210.

Measures

The data collection tool consisted of three parts. The first part included demographic information such as the mother's age, the child's age and gender, chart growth status, the mother's occupation and education level, pregnancy status (planned or unplanned), Number of Pregnancies, type of delivery, breastfeeding education, family support, and the primary supporter, the infant's feeding type; including exclusive breastfeeding and un exclusive breastfeeding. The second part of the questionnaire assessed maternal health literacy, the validity and reliability of which were confirmed by Kharazi and colleagues (2015) in Iran (18). This tool consists of 14 items and uses a four-point Likert scale for scoring: strongly agree (score 4), agree (score 3), disagree (score 2), and strongly disagree (score 1). The total score reflects the mother's level of health literacy, ranging from 14 to 56. The questionnaire's validity has been reported at 96%, with a reliability of 89%. Questions 1 to 10 relate to

the area of verbal and auditory comprehension domain (ACD) (ranging from 10 to 40) and assess items such as the ability to understand basic medical information, and questions 11 to 14 relate to the area of self-management domain (SMD) (ranging from 4 to 20) and assess skills related to child care and breastfeeding.

Data Analysis Method

After extracting data from the questionnaires and performing initial cleaning, the information was entered into SPSS version 25 for statistical analysis. In the first stage, variables in each group were described using descriptive statistics, including measures of central tendency, measures of dispersion, and frequency distribution. In the next stage, inferential statistical methods were used to analyze relationships and differences. The normality of quantitative variables was assessed using the Kolmogorov–Smirnov test. Qualitative variables were compared between study groups using the Chi-square test. Quantitative variables were compared using independent t-tests or ANOVA for normally distributed data, and the Mann–Whitney U or Kruskal–Wallis tests for non-normally distributed data. A significance level of $P \leq 0.05$ was considered for all tests.

Results

In this study, 648 participants were included, of whom 333 had preterm birth (PB; gestational age below 36 weeks) and 315 had full-term birth (FB; gestational age 37 weeks or more). The mean ± standard deviation of the mothers' ages in the PB and FB groups were 29.5 ± 5.8 and 30.5 ± 1.6 years, respectively. The majority of mothers in the PB and FB groups (89% and 89.3%, respectively) were homemakers. In addition, 76.6% of mothers in the PB group and 91.1% in the FB group reported having family support, mainly from their mother and spouse Demographic characteristics are summarized in Table 1.

The mean maternal health literacy scores in the FB and PB groups were 42.8 ± 8.5 and 39.5 ± 9.6, respectively. Comparison of maternal health literacy scores and their domains between PB and FB groups, as well as between exclusive and non-exclusive breastfeeding, is presented in Table 2.

Based on the results, maternal health literacy showed a statistically significant association with Birth Age (PB or FB) Mother's Occupation, Residence, education level, economic status, number of pregnancies, Birth weight and family support ($P < 0.05$). However, no significant relationship was found between health literacy, and exclusive breastfeeding, prenatal education, type of delivery, or pregnancy status ($P > 0.05$) (Table 3).

Discussion

This study aimed to compare the health literacy of mothers with preterm births (PB) and full-term births (FB) regarding exclusive breastfeeding and its related factors among those attending healthcare centers in the districts covered by Mashhad. The results showed that mothers with full-term birth (FB) had higher health literacy levels in terms of total health literacy score and both in the domain of auditory comprehension and self-management domain, while mothers with preterm term birth (PB) showed lower health literacy levels. The findings of the present study align with those of Alinejad et al., who investigated the relationship between health literacy, social support, and self-efficacy

among mothers of PB hospitalized in neonatal wards concerning exclusive breastfeeding(7).

They found that 23.5% of mothers had low health literacy, and only 30% achieved an adequate health literacy score.

In a study by Fardi Pour and colleagues examining the relationship between health literacy, self-efficacy, and breastfeeding performance among mothers of hospitalized infants at Fatemieh Hospital in Hamedan, maternal health literacy was assessed as adequate, although it still fell short of the maximum possible score(18).

Table 1. Comparison of Demographic Characteristics in Participant Groups Based on Gestational Age (Preterm birth and full-Term birth) and exclusive breastfeeding and unexclusive breastfeeding

Variable	Category	PB (n=333), n (%)	FB (n=315), n (%)	p-value	EB (n=393), n (%)	UEB (n=255), n (%)	p-value
Mothers age*	M±SD	29.5 ± 5.8	30.5 ± 1.6	0.002	31.5 ± 1.6	29.7 ± 5.0	0.41
Mother's Occupation	Housewife	298 (89)	281 (89.3)	0.900	351(89.0)	228(88.9)	0.90
	Employed	35 (11)	34 (10.7)		42(10.1)	27(11.1)	
Residence	Urban	223 (67)	224 (72)	0.100	267(67.0)	180(70.8)	0.20
	Rural	110 (33)	91 (28)		126(33.0)	75(29.2)	
Mother's Education	Primary	70 (21)	69 (22.2)	0.001	83(21.1)	56(22.0)	0.00
	Junior High	91 (27.3)	45 (14.2)		84(21.3)	52(20.0)	
	High School	47 (14.1)	38 (12)		54(13.7)	31(12.0)	
	Diploma	60 (18)	80 (25.3)		85(21.6)	55(22.0	
	University	65 (19.6)	83 (26.3)		87(22.3)	61(24.0)	
Number of Pregnancies	one child	120(36.4)	91(28.8)	0.147	115(29.4)	96(38.0)	0.60
	Two children	112(33.6)	115(36.6)		141(35.8)	86(34.0)	
	Three or more children	101(30)	109(34.6)		137(34.8)	73(28.0)	
Type of Delivery	Cesarean	208 (62.5)	145 (46)	0.000	185(47.0)	168(66.0)	0.00
	Vaginal	125 (37.5)	170 (54)		208(53.0)	87(34.0)	
Pregnancy status	planned	314 (94.5)	274 (87)	0.001	351(89.4)	237(93.0)	0.07
	Unplanned	19 (5.5)	41 (13)		42(10.6)	18(7.0)	
Infant Gender	Girl	173 (52)	173 (54.9)	0.400	297(75.6)	191(75.0)	0.20
	Boy	160 (48)	142 (45.1)		96(24.4)	63(25.0)	
Economic Status	Poor	49 (14.6)	39 (12.4)	0.020	58(15.0)	30(11.8)	0.70
	Average	251 (75.4)	220 (70)		278(70.5)	193(75.7)	
	Good	33 (10)	56 (17.6)		57(14.5)	32(12.5)	
prenatal education	Yes	246 (79.3)	224 (71.1)	0.030	334(85.7)	208(81.7)	0.37
	No	69 (20.7)	91 (28.9)		59(14.3)	47(18.3)	
Family Support	Yes	255 (76.6)	287 (91.1)	0.000	115(29.4)	96(38.0)	0.04
	No	78 (23.4)	28 (8.9)		141(35.8)	86(34.0)	

*Independent t-test **Chi-square test M: mean, SD: standard deviation, PB: preterm birth
FB: full-term birth EB: Exclusive breastfeeding UEB: Unexclusive breastfeeding

Table 2. Comparison of maternal health literacy score and its domain between groups of PB and FB - Exclusive breastfeeding and unexclusive breastfeeding

Variable	Category	Exclusive breastfeeding	Unexclusive breastfeeding	Preterm Birth	Full term Birth
ACD	Question 1to10	29.2±6.4	28.1±6.6	27.7± 6.8	29.7 ± 6.0
p-value		0.20		<0001	
SMD	Question 11to14	12.1±3.2	11.9±3.0	11.7 ± 3.4	12.3 ± 2.8
p-value		0.80		<0001	
Total-HLS	Question 1to14	41.1±9.0	40.2±9.3	39.5 ± 9.6	42.8 ± 8.5
p-value		0.27		<0001	

Table 3. Relationship between maternal health literacy, its domains and Associated Factors across Study Groups

Variable	Category	ACD	SMD	Total-HLS
Exclusive Breastfeeding	Yes	29.2±6.4	12.1±3.2	41.1±9.0
	No	28.1±6.6	11.9±3.0	40.2±9.3
p-value**		0.20	0.80	0.27
Birth Age	PB	27.7± 6.8	11.7 ± 3.4	39.5 ± 9.6
	FB	29.7 ± 6.0	12.3 ± 2.8	42.8 ± 8.5
p-value**		<0001	<0001	<0001
Mother's Occupation	Housewife	28.2±6.3	11.9±3.1	40.2±8.9
	Employed	32.3±6.7	13.3±3.0	45.7±9.4
p-value		<0001	<0001	<0001
Residence	Urban	29.2±7.0	12.1±3.1	41.4±9.9
	Rural	27.7± 4.9	11.7±3.1	39.4± 7.0
p-value**		<0001	<0001	<0001
Mother's Education	Primary	24.2±6.3	10.2±2.6	34.5±8.5
	Junior High	26.1±5.3	11.1±3.6	37.2±7.9
	High School	27.6±4.9	11.0±2.4	38.6±6.8
	Diploma	30.7±5.7	12.9±2.5	43.7±7.9
	University	33.9±4.5	14.4±2.0	48.4±6.2
p-value*		<0001	<0001	<0001
Type of Delivery	Cesarean	28.8±5.8	12.9±2.5	40.4±9.4
	Vaginal	28.5±7.0	12.0±3.1	41.0±8.4
p-value**		0.85	0.77	0.91
Pregnancy status	Unplanned	30.3±6.3	12.1±3.1	40.5±9.1
	planned	28.5±6.5	12.5±2.9	42.0±8.8
p-value**		0.05	0.10	0.07
Economic Status	Poor	26.7± 7.1	11.8±3.1	38.5± 8.5
	Average	28.4±5.4	11.8±2.9	40.5±9.1
	Good	32.0±5.5	13.9±2.3	45.6±7.5
p-value*		<0001	<0001	<0001
Prenatal Education	Yes	28.5±6.3	12.9±3.1	44.0±8.9
	No	29.1±7.0	12.24±3.2	41.0±9.9

Variable	Category	ACD	SMD	Total-HLS
p-value*		0.10	0.09	0.10
Family Support	Yes	29.8±5.6	12.5±2.9	42.4±7.9
	No	22.8±7.7	9.6±2.9	32.5±7.5
p-value		<0001	<0001	<0001
Number of pregnancies	one child	29.7±6.3	12.3±3.0	42.1±8.9
	Two children	28.4±6.4	11.8±2.9	40.3±8.1
	Three and more children	27.9±6.7	11.9±3.4	39.8±9.3
p-value		0.001	0.04	0.005
Birth weight	<2500gram	27.7± 6.8	11.8±3.5	39.6±9.7
	>2500gram	29.5 ± 6.0	12.2 ± 2.8	41.8±8.5
p-value		0.003	0.020	0.009

*Kruskal-Wallis **Mann-Whitney Total-HLS: Total Health Literacy Score ACD: Auditory comprehension domain SMD: Self-management domain (SMD)

However, in another study, health literacy was found to be inadequate or only marginally sufficient across all domains, with the highest scores in the area of understanding and comprehension, and the lowest scores in the domain of access (22), Macli and et al in New York, USA, conducted a study to assess the health literacy of parents in a neonatal intensive care unit and concluded that the majority of participants had low health literacy (23, 24). In this regard. Differences in findings may be attributed to variations in study samples, research settings, and the different tools used to assess various domains of health literacy. Although multiple factors influence maternal health literacy, the health system must fulfill its responsibility by providing diverse and culturally, economically, and socially appropriate educational resources. The low health literacy observed in mothers appears to stem from a lack of awareness among women, insufficient educational resources that do not match patients' comprehension, the overwhelming amount of uncontrolled information available on online platforms, and the neglect from staff regarding the significance of health literacy and its effects on well-being, alongside the delivery of conventional and inadequate education and a disregard for health literacy strategies in healthcare facilities.

While this study observed a higher mean health literacy score in both domains (ACD, SMD) among mothers practicing exclusive breastfeeding, the difference between the groups was not statistically significant. This contrasts with findings by Charoghchian et al., who reported an increase in health literacy scores in their intervention group practicing exclusive breastfeeding, attributing this to training based on self-efficacy theory and health literacy strategies (20). Furthermore, Pourman et al. found that low health literacy levels were associated with never initiating breastfeeding, and Kohan noted that women with adequate health literacy were more likely to initiate breastfeeding. Several studies also highlight a link between low parental health literacy and poorer child health outcomes (1, 7, 18). The variations in these research outcomes can likely be attributed to differences in the instruments used for measurement, sample

sizes, and the timing of sample collection. Our study's approach involved randomly selecting participants from various urban areas within Mashhad to better account for cultural diversity. Therefore, to enhance maternal health literacy, it is advisable to consider the specific characteristics of the target population and the cultural context of each region.

The results of the present study showed a significant relationship between maternal health literacy and both education level and employment status, indicating that mothers with higher education had higher health literacy. Similarly, studies by Sadeghi et al (12). In Esfarayen, Ghanbari et al., and Masoumi et al. have demonstrated that mothers with higher education levels and employment status exhibit greater health literacy (25). These consistent findings across various populations and cultures suggest that women with higher education and professional engagement better understand and apply health-related information and awareness. This highlights the potential for coordinated national policies to enhance women's health literacy through these key factors.

The findings of this study also showed a significant relationship between health literacy and the birth weight of newborns. Mothers of infants with a birth weight of over 2500 g at birth scored higher in both ACD and SMD. This study is consistent with the study by Yazdi-Rad et al. in Sistan and Baluchestan province (26), which was conducted on 860 primiparous pregnant women, and is inconsistent with the results of Mazaleh Sadeghi et al. in Esfarayen (13), This discrepancy could be due to the difference in the economic and social status of the participants and the confounding effect of this variable. According to the researchers, further investigation is needed to consider the effect of this confounding.

Despite the fact that the vast majority of mothers in this study (more than 90%) had pre-planned pregnancies, no significant association was found with their health literacy or exclusive breastfeeding. This finding was consistent with Ghodsi et al (23). However, mothers who experience preterm labor due to unplanned delivery may not have access to childbirth preparation classes and breastfeeding skills development, resulting in reduced knowledge of newborn care. Therefore, it is recommended that health care providers provide step-by-step education on preterm infant care and breastfeeding skills to mothers at risk of preterm labor, especially primiparous mothers, from the early stages of pregnancy. Such education is very effective in increasing maternal health literacy and, in turn, promoting the health of families and children.

Furthermore, the study results showed a significant association between health literacy and family support as well as exclusive feeding, indicating potential avenues for intervention in target groups. These results are consistent with the study by Alinejad et al (7).

Support facilitates healthy attitudes and behaviors among mothers with low health literacy. Mothers with high health literacy in the areas of auditory comprehension and self-management have a greater ability to obtain family support for optimal nutrition and to obtain necessary information. Conversely, insufficient health literacy to seek

support may exacerbate adverse health outcomes for these vulnerable mothers compared to those with higher health literacy (6). Social support can reduce the impact of maternal anxiety and stress on the mother-infant relationship, enabling the mother better to support her infant's physical and emotional health. Furthermore, support from a spouse and other family members can enhance a mother's ability to breastfeed exclusively, while also promoting feelings of calm and comfort, which may stimulate oxytocin production and positively influence milk supply (11). While low health literacy can present challenges, accurately assessing the extent of these limitations necessitates considering the social support and resources individuals rely upon (8, 27). Given the maternal health literacy levels observed in this study, increasing individuals' knowledge and understanding of health-related topics is undoubtedly a fundamental step towards achieving broader health system goals.

Study Limitations and Strengths: Although the findings of this study offer a deeper understanding of the relationship between maternal health literacy and infant feeding practices—particularly among PB—this research represents the first study in Iran to compare health literacy between mothers of PB and FB newborns. This novelty constitutes a key strength of the study and contributes to the growing body of literature in maternal and neonatal health within the Iranian context. However, the study also has several limitations. The cross-sectional design precludes the establishment of causal relationships and limits the interpretation of the results to correlational associations between variables. Moreover, data collection was confined to health centers affiliated with the municipalities under the jurisdiction of Mashhad. Consequently, the generalizability of the findings to the broader national population or to other cultural contexts should be approached with caution. On the other hand, Weak and ineffective sucking due to the physical characteristics of premature infants is one of the most important problems in the early initiation of breastfeeding. Unfortunately, this study neglected to investigate this matter. Therefore, it is suggested that future research consider the Infant Feeding Ability (NFA) Questionnaire and Breastfeeding Initiation Practices scale (BIP) to investigate the cause of breastfeeding cessation in these mothers more accurately.

Conclusion

The results of this study highlight that mothers of premature babies (PB) exhibit lower health literacy, which correlates with a reduced likelihood of practicing exclusive breastfeeding. The inherent conditions of premature infants pose significant breastfeeding challenges for these mothers, including difficulties with sucking. Consequently, healthcare professionals and nurses are crucial in guiding mothers through appropriate breastfeeding skill training. It is therefore essential for all healthcare providers to be adequately trained in safe and effective breastfeeding practices for PB. Furthermore, anticipatory guidance for families at risk of PB, informing them of potential breastfeeding difficulties prior to delivery and educating them on providing effective support, is vital. Enhancing communication between healthcare providers and families is key to addressing common breastfeeding challenges and

implementing successful strategies. Preparing caregivers with essential knowledge and skills for home-based care is also critical for improving maternal confidence and efficacy. Finally, adapting educational materials to be simple, understandable, and incorporating both verbal/visual and written instruction can significantly boost maternal health literacy.

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Consent for Publication: Not applicable.

Ethics Approval and Consent to Participate: This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. It was approved by Vice President of Research and Technology in Mashhad University of Medical Sciences (Project Code: 4021149; Ethics Code: IR.MUMS.FHMPM.REC.1402.210), and it has been registered in the university's research information system. Prior to data collection, the study objectives were fully explained to all participants, and verbal informed consent was obtained from them.

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