

Breastfeeding Techniques and Associated Factors among Mothers before Discharge: A Cross-Sectional Study

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Research

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Abstract

Background

Breastfeeding techniques are strongly associated with the exclusive breastfeeding. It is the very key time to improve mothers' breastfeeding techniques during staying in the hospital and delivery institution, but there is little study about in-hospital breastfeeding techniques in China. This study aimed to assess the breastfeeding techniques and its associated factors among mothers in hospital.

Methods

A cross-sectional study was conducted in Peking university people's hospital, china, from March 19, 2018 to April 27, 2018. 153 mothers selected by convenience sampling technique were investigated by questionnaire survey, which includes the LATCH scoring system, the general information and breastfeeding behavior questionnaire, the breastfeeding knowledge questionnaire, and the Chinese version of maternal breastfeeding evaluation scale (MBFES). Factors associated with in-hospital breastfeeding techniques were determined by multiple regression analysis.

Results

The average score of breastfeeding techniques assessed before discharge was 8.63, the multipara, long hospital staying, and high breastfeeding satisfaction were positive effects to breastfeeding techniques before discharge ($P < 0.05$), which could explain 11.2% of the variance.

Conclusion

Although the breastfeeding techniques before discharge are high, we can still make efforts to improve it. Implementing measures to promote breastfeeding, provide breastfeeding guidance right after delivery, take timely evaluation and specific guidance will be conducive to improve the breastfeeding techniques and do help to increase the exclusive breastfeeding rate.

Background

Exclusive breastfeeding for 6 months has many benefits for the infant and mother, such as protection against gastrointestinal infections, providing energy and nutrients, reducing the risk of ovarian and breast cancer^[1, 2]. However, only about 36% of infants aged 0–6 months worldwide were exclusively breastfed over the period of 2007–2014, and the fifth of china national health services survey shows that the exclusive breastfeeding rate is 58.5%^[3]. The "Comprehensive implementation plan on maternal, infant and young child nutrition" endorsed by Member States in May 2012 includes 6 targets, one of which is to increase, by 2025, the rate of exclusive breastfeeding for the first 6 months up to at least 50%^[1]. Therefore, we are in argent need of measures to improve the exclusive breastfeeding.

Breastfeeding techniques are strongly associated with the exclusive breastfeeding. Good breastfeeding techniques are the key to the success of early breastfeeding and continuous exclusive breastfeeding. The lack of breastfeeding techniques of the parturient women may lead to many problems such as incorrect breast-feeding posture, wrong breast holding, breast swelling and pain, which may eventually cause the stopping of exclusive breastfeeding^[4, 5]. The best time to improve the skills of breastfeeding is in the hospital and delivery institution^[6].

This study investigated the breastfeeding techniques and analyzed its associated factors, which would help the health care providers make specific intervention to improve the breastfeeding techniques of the mothers in hospital and increasing the exclusive breastfeeding rate as well.

Methods

Study setting

This study was conducted at the maternity ward of Peking University People's Hospital in China, which is a comprehensive and teaching hospital for the Peking University Health Center.

Study design

This study was aimed to assess the breastfeeding techniques of mothers before discharge and identify its associated factor. We use a cross-sectional design for this descriptive correlational study and conducted questionnaire survey with a convenience sample of mothers before discharge. This study was approved by the institutional review board of Peking University People's Hospital (No. 2019PHB227-01).

Study Sample

The potential participants were recruited through the maternity ward of a metropolitan, general, teaching hospital in the north of china from March 19 to April 27, 2018. Inclusion criteria for mothers were as follows: (a) Come back to the maternity ward after natural childbirth or cesarean section; (b) informed consent and voluntary participation in this study. Exclusion criteria: (a) communication barriers; (b) unclear consciousness or mental disorder; (c) taboos on breast-feeding such as acute phase of hepatitis b, active tuberculosis, taking anticancer drugs, HIV positive, congenital malformations and congenital metabolic diseases of newborns, et al; (d) separation of mother and baby. A total of 166 potential participants were initially recruited; 13 mothers did not fill the questionnaire completely that the final sample size was 153.

Measures

The study was conducted by questionnaire survey, which includes the LATCH scoring system, the general information and breastfeeding behavior questionnaire, the breastfeeding knowledge questionnaire, and the Chinese version of maternal breastfeeding evaluation scale (MBFES).

The LATCH scoring system.

Used to assess mothers breastfeeding techniques. The questionnaire was designed by Jensen^[7], which evaluate breastfeeding techniques from five aspects: Latch, Audible swallowing, Type of nipple, Hold and Comfort. Each item gets a score of 0 or 1 or 2, the total score is 10. The higher score means a better breastfeeding techniques. The Cronbach' s α is 0.7^[8]. The LATCH scoring system is a simple and effective tool to evaluate breastfeeding techniques, which has a good consistency and sensitivity among different ethnic groups so that it can be used in multi-ethnic population^[8].

The general information and breastfeeding behavior questionnaire.

The questionnaire was developed and modified by the researcher after consulting domestic and foreign study. It includes: 1) Sociodemographic characteristics: age, marital status, Level of education, Average monthly family income; 2) Obstetrics and Maternal characteristics: the times of delivery, whether received breastfeeding counseling during pregnancy, gestational complications/complications, gestational weeks, mode of delivery, skin contact time after delivery, number of births, birth weight, satisfaction of the infant's sex, condition of infant's neonatal jaundice, length of hospital stay, feeding frequency and sucking duration, whether mastered the way of milking.

Breastfeeding knowledge questionnaire.

Which was developed by Zhao Min^[9] and used to measure the breastfeeding knowledge level. It includes 17 items, each item gets 1 point with the correct answer, the total score is 0~17 points. The higher score means a better level of breastfeeding knowledge. The Content Validity Index is 0.91, Cronbach' s α is 0.80.

The maternal breastfeeding evaluation scale (MBFES).

To evaluate the satisfaction of breastfeeding. The Chinese version used in this study was translated by Yu^[10]. It includes 29 items in 3 dimensions: maternal satisfaction, infant satisfaction, mother's lifestyle. Each item uses a 5-point Likert scale with a total score of 145 points. The higher score means the better breastfeeding satisfaction. It' s Cronbach' s α is 0.952, content validity index is 0.896.

Data Collection

All data was collected within 24 hours before the mother discharged. One investigator who had been trained to use the LATCH scoring system evaluated mothers' breastfeeding techniques. The general information, breastfeeding knowledge questionnaire and the maternal breastfeeding evaluation scale (MBFES) were filled by the mothers. The investigator used unified instruction to explain the question of the mothers, checked the collected data for completeness and corrective measures were taken accordingly. A total of 166 cases of questionnaires were distributed and 153 cases were effectively recovered, with an effective recovery rate of 92.2%.

Statistical Analysis

Double data entry was done by using Epi Data statistical software version 3.1. Entered data exported into statistical package for social science (SPSS) software version 21 for analysis. Descriptive statistics of each variable was determined and the results were presented by percentages, mean and standard deviation. *t*-test was used for dichotomous variables, ANVOA was used for comparison among multiple groups, and Pearson correlation analysis was used for measurement data. Those variables with a *p* value < 0.05 were included in the final model (multivariate analysis). Factors associated with breastfeeding techniques before discharge were determined by multiple linear regression analysis. Statistical significance was declared at a *p* value < 0.05.

Results

Sample Characteristics

153 mothers were participated in this study. The mean age of the study participants was 32.33(3.72) years old and 71.2% (n = 109) were older than 30 years old, all of them were married, and 87.5% (n = 134) had a bachelor's degree or above. Among all the study participants, 71.2% (n = 109) were Primipara, 54.2% (n = 101) received breastfeeding counseling during pregnancy, 69.9% (n = 107) had their infants with vaginal mode of delivery. Average length of hospital stay were 3.94 days (standard deviation = 2.30). Before discharge, the mean breastfeeding knowledge score was 14.01 (standard deviation = 2.00), the mean satisfaction score of breastfeeding was 116.14 (standard deviation = 11.67).

Breastfeeding Techniques of Mothers before Discharge

The mean score of breastfeeding techniques is 8.63 (standard deviation = 1.27), the mean scores of each item were listed in Table 1.

Table 1
Breastfeeding Techniques Scores of Mothers before Discharge

	<i>M (SD)</i>	Descending order
C (Comfort)	1.99 (0.11)	1
T (Type of nipple)	1.82 (0.48)	2
L (Latch)	1.77 (0.44)	3
A (Audible swallowing)	1.55 (0.78)	4
H (Hold)	1.50 (0.60)	5
Total score	8.63 (1.27)	-
<i>M</i> mean, <i>SD</i> standard deviation		

Factors Associated with Breastfeeding Techniques

In the bivariate analysis, presented in Table 2 and Table 3, mothers' age, times of delivery, infant's neonatal jaundice, length of hospital stay, satisfaction of breastfeeding were found to have statistically significant association with breastfeeding techniques scores ($p < .05$). Variables including times of delivery, length of hospital stay, satisfaction of breastfeeding were included in the multiple linear regression model ($p < .05$), which could explain 11.2% of the variance (Table 4).

Table 2
t-test and one-way ANVOA Analyses of Breastfeeding Techniques among Mothers in Hospital

	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	<i>t/F</i>	<i>P-value</i>
Level of education			2.146*	0.121
Junior college or below	19 (12.4)	9.11 (1.05)		
Bachelor	68 (44.4)	8.68 (1.26)		
Master or above	66 (43.1)	8.44 (1.31)		
Average monthly family income			2.328*	0.101
≤10000 ₺	49 (32.0)	8.57 (1.37)		
10000-15000 ₺	48 (31.4)	8.94 (1.14)		
≥15000 ₺	56 (36.6)	8.41 (1.26)		
Times of delivery			8.616	0.004
Primipara	109 (71.2)	8.44 (1.29)		
Multiparas	44 (28.8)	9.09 (1.12)		
Breastfeeding counseling			1.344	0.248
Yes	101 (54.2)	8.71 (1.21)		
No	52 (45.8)	8.46 (1.38)		
Gestational complications			-0.106	0.745
Yes	41 (26.8)	8.61 (1.28)		
No	112 (73.2)	8.68 (1.27)		
Mode of delivery			1.275	0.261
Vaginal	107 (69.9)	8.55 (1.32)		
Cesarean section	46(30.1)	8.80 (1.15)		
Skin contact time after delivery			0.582*	0.560
30 minutes	10 (6.5)	8.50 (1.51)		
60 minutes	41 (26.8)	8.46 (1.12)		
90 minutes	102 (66.7)	8.71 (1.31)		
Number of births			-1.483	0.138
Singletons	150 (98.0)	8.61 (1.27)		
Twins	3 (2.0)	9.67 (0.58)		

	<i>n (%)</i>	<i>M (SD)</i>	<i>t/F</i>	<i>P-value</i>
Birth weight			1.415*	0.246
<2500g	8 (5.2)	8.00 (1.41)		
2500g-4000g	135 (88.2)	8.64 (1.28)		
>4000g	10 (6.5)	9.00 (0.94)		
Infant' s neonatal jaundice			4.418	0.037
Yes	49 (68.0)	8.94 (1.16)		
No	104 (32.0)	8.48 (1.30)		
Sucking duration			1.211*	0.308
<10 minutes	8 (5.2)	8.13 (1.46)		
10-20 minutes	62 (40.5)	8.56 (1.21)		
20-30 minutes	52 (34.0)	8,87 (1.24)		
>30 minutes	31 (20.3)	8.48 (1.39)		
Milking			2.05	0.154
Yes	108 (70.6)	8.72 (1.22)		
No	45 (29.4)	8.40 (1.37)		
* <i>F</i> value of the one-way ANVOA analyses				

Table 3
Pearson Correlation Analyses of Breastfeeding
Techniques among Mothers before Discharge

	<i>r</i>	<i>P-value</i>
Mother' age	0.187	0.021
Gestational weeks	-0.21	0.800
Length of hospital stay	0.168	0.038
Breastfeeding knowledge	-0.20	0.808
Satisfaction of breastfeeding	0.203	0.012

Table 4
Multiple Regression Analyses of Breastfeeding Techniques among Mothers before Discharge

	β	Standard Error	t-test	P-value	95% CI for β
Intercept	4.671	1.036	4.509	<0.001	2.624, 6.719
Times of delivery	0.657	0.214	3.070	0.003	0.234, 1.080
Length of hospital stay	0.023	0.008	2.787	0.006	0.020, 0.187
Satisfaction of breastfeeding	0.103	0.042	2.439	0.016	0.007, 0.040
Model significance test, $F=7.373$; $P\text{-value}<0.001$; $R^2=0.129$, Adjusted $R^2=0.112$					

Discussion

Breastfeeding Techniques of Mothers before Discharge

The investigation results showed that the mean breastfeeding techniques score assessed before discharge was 8.63, which was higher than the baseline of an evidence-based study with 8.06^[11], otherwise lower than the second round review results with 8.78 and 8.80. Cakmak^[12] conducted a study discovered that the breastfeeding techniques scores of the vaginal and caesarean deliveries mothers were 9.75 and 8.81 when breastfeeding for the third time. The results suggested that the breastfeeding techniques before discharge were satisfying, however we still can take efforts to improve it. In the five aspects of breastfeeding techniques, the Hold and the Audible swallowing had bigger impacts on breastfeeding techniques in compared with the other items. When breastfeeding during the early time after delivery, due to the energy expenditure, pain of the wound or lack of feeding skills, which make it hard to lactate independently, the mothers need the help of nurses or family members to hold the infant in an appropriate position so that they can feed the infant successfully. Therefore, the health care providers should strengthen the assessment of the maternal and give introductions of feeding positions, for example lateral position, which can avoid giving pressure to the wound and relieve pains. In 1~2 days after delivery, the health care providers can guide mothers feed infant in a sitting position till they can lactate independently. The Audible swallowing is the sign of effective milk transferring^[12], the health care providers should carry out care of early-touching, early-sucking and guide the correct feeding posture and latching skills to ensure effective breast milk intaking. The appropriate breastfeeding posture and latching skills can also prevent the pain or injury to the nipple^[13].

Factors Associated with Breastfeeding Techniques

In this study the breastfeeding techniques of multipara were better than Primipara, which is similar to the study conducted by Lau^[14]. Previous information and successful experience on breastfeeding were significantly related to the breastfeeding techniques^[15,16]. Accumulating knowledge and techniques from previous breastfeeding experience helped the multipara master breastfeeding skills quickly and expertly. Proficient breastfeeding techniques is so significant that the health services should ensure all mothers got assessed and guided on breastfeeding, especially for the primipara. Patel^[17] found that lactation education or support programs using lactation consultants or lactation counselors improved rates of initiation and duration of breastfeeding and exclusive breastfeeding compared with usual practice.

In this study the scores of breastfeeding techniques rose with the increase of hospital stay. In old days, the hospital stay was long enough for mothers building effective breastfeeding before discharge. At the present, with a limited hospital stay for 2-3 days, it's of great importance to make timely assessment and targeted breastfeeding guidance to the mothers to improve breastfeeding techniques before discharge, such as the correct posture and lactation, informing the common problems and corresponding solutions in breastfeeding ^[8].

In this study, satisfaction with breastfeeding was a factor affecting breastfeeding techniques. Dai^[18] found that the satisfaction play an important role in breastfeeding techniques as well. A high breastfeeding satisfaction will make mothers more willing to learn breastfeeding skills and continue exclusive breastfeeding. While low satisfaction may lead to the reluctance on breastfeeding, resulted in decline of breastfeeding skills or even stopping breastfeeding. The main factors affecting satisfaction with breastfeeding were the impacts on physical life, difficulties in starting breastfeeding and worries about whether the infants get enough weight gains. Mother-infant skin to skin contact after birth has beneficial effects on breast-feeding and can increase the success rate and duration of the first lactation^[19]. Early breastfeeding success and high level of satisfaction are essential for continual breastfeeding. The health care providers should strengthen the guidance and eliminate the mothers' doubts timely, on the purpose of enhancing the confidence of the mothers and increasing breastfeeding satisfaction. Abbass^[20] found that providing information to parents on breastfeeding, including fathers, and co-parenting was well received by parents. So that Information should target both parents and be delivered in a variety of modes.

In this study, Mother's age, education level, breastfeeding knowledge were not strongly related to the breastfeeding techniques before discharge, which were not completely consistent with other scholars' findings. Lau^[14] discovered that the mothers' age and ethnicity had no significant influence on breastfeeding techniques, while the study of Tiruye^[15] found that effective breastfeeding techniques was related to higher educational level. The possible reasons may be that the hospital surveyed in this study is located in the capital city of China with high level of economics and educations. A large part of the participants were over 30 years old and highly educated. They have many approaches to acquire knowledge about breastfeeding and get a high level of breastfeeding knowledge, which may show no obvious effects on the breastfeeding techniques. We should still emphasis on strengthening the

breastfeeding counseling and education in perinatal period^[21]. Senghore^[22] discovered that breastfeeding counseling was significantly associated with intention to or practice of exclusive breastfeeding. There were studies showed that Systematic education and guidance during the whole periods of delivery can enhance mothers breastfeeding techniques significantly and improve exclusive breastfeeding rates^[23].

Limitation

This study was conducted in one center that the samples have limited representation of the participants. Researches with larger scale can be conducted in the future. On the other hand, the factors found associated with breastfeeding techniques in this study can explain only a limited part of the breastfeeding techniques, which suggested that there may exist other important factors influencing breastfeeding techniques and further studies can be conducted to explore other factors affect the breastfeeding techniques.

Conclusions

Although the breastfeeding techniques before discharge are high, we can make further efforts to improve it. Multipara, long hospital staying and high degree of satisfaction with breastfeeding are favorable factors for breastfeeding techniques before discharge. The best time to promote breastfeeding is in the hospital or delivery institution. Taking measures to promote breastfeeding techniques, providing breastfeeding guidance right after delivery, making timely evaluation and targeted guidance will be conducive to improve the breastfeeding techniques before discharge and increase the exclusive breastfeeding rate. In addition, more researches are needed to find more crucial factors related to breastfeeding techniques.

Declarations

Ethics approval and consent to participate:

This study was approved by the institutional review board of Peking University People's Hospital (No. 2019PHB227-01).

Consent for publication:

Not applicable.

Availability of data and materials:

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

Competing interests:

The authors declare that they have no competing interests.

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Authors' contributions:

SL made substantial contributions to study design and literature review. Participated in data auditing, analysis and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content. DZ made substantial contribution to data analysis and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content. All authors give final approval for the version to be published and agreed to be accountable for all aspects of the work.

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