FACTOR STRUCTURE AND RELIABILITY OF AN OBSERVATION LIST ON BREASTFEEDING PRACTICES IN IMMEDIATE PUERPERAL WOMEN

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Objective: To identify the factor structure and reliability of an instrument to measure the adequate practice of breastfeeding in immediate postpartum women. **Material and methods:** A cross-sectional study was conducted in 422 <24-hour postpartum women treated at the Cayetano Heredia National Hospital in Lima, Peru, with a live newborn, who agreed to participate, excluding those with multiple births and breastfeeding impediment pathologies, between July and December 2016. An observation list of 7 items (Yes=1, No=0), score from 0 to 7, was made, applying exploratory factor analysis with varimax rotation, Bartlett's Chi-square and KMO (construct validity), ROC curve (criterion validity) and KR-20 (reliability). **Results:** 76.5% were between 20 and 35 years old. The score was 5.0±1.4 points (range 0-7 points). Two dimensions were identified: KMO=0.751, p<0.001 (construct validity), ROC=0.697 curve, 95%CI 0.55-0.84 (criterion validity), and KR-20=0.720 (reliability). Scores greater than 5 were sensitive for adequate breastfeeding practice (sensitivity= 86%, specificity=51%). **Conclusion:** The watch list was adequate for the identification of adequate breastfeeding practice in the immediate puerperium.

Keywords: Breastfeeding, Puerperium, Scale, Reliability, Validity (Source: MeSH, NLM)

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INTRODUCTION

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend skin-to-skin contact, early initiation of breastfeeding and mother-child co-housing as strategies to promote comprehensive childbirth care, favoring the initiation, establishment and maintenance of exclusive breastfeeding (1).

Successful breastfeeding requires a physically and mentally fit mother, who has a positive attitude towards breastfeeding, who has the necessary knowledge and management of the appropriate technique (2). The general care of the child should contribute to effective sucking, which establishes an abundant production of breast milk, which due to its composition and characteristics are not comparable (3). For this process to be successful, it must be considered: comfortable positions of the mother and child to facilitate feeding, learning the correct nipple intake so that the sucking pleases, sucking and swallowing pattern of the child, transfer of milk between mother and child, opportunity and frequency of feedings for the breastfed baby, Feeding on demand, stimulation to wake him up and calm him when crying during the breastfeeding period (4).

During the first hours after childbirth, it is crucial that the mother adopts the correct techniques for breastfeeding, a process that has detailed instructions (5), but lacks an instrument that objectively evaluates it, so we do not have a validated instrument that allows us to measure the appropriate breastfeeding practice. The objective of this study is to identify the factor structure and reliability of an instrument to measure adequate breastfeeding practice in immediate postpartum women.

MATERIAL AND METHODS

Type of study

Prospective, cross-sectional design study.

Population and sample

They corresponded to puerperal women treated at the Cayetano Heredia National Hospital, an institution of the Ministry of Health located in the city of Lima, and serves patients affiliated with the Comprehensive Health Insurance. A total of 422 puerperal women were selected, including immediate puerperal women (delivery <24 hours), who agreed to participate, with a live newborn, excluding multiple pregnancies and pathologies that prevented breastfeeding. The sample was collected from July to December 2016.

Instrument construction

After reviewing the literature, no instrument was found that proposed a breastfeeding checklist in the first 24 hours postpartum. Therefore, the proposal by Tomico (6) was adopted, which proposes the evaluation of breastfeeding without determination of specific periods. This proposal verifies three areas: baby's posture (9 items), infant position (7 items) and signs of effective milk transfer (6 items), the instrument consists of 29 items, of which 22 items are observation and dichotomous Yes/No response. As the initial document refers to breastfeeding up to six months, the items were adapted to be applied in the first 24 hours postpartum. This research is part of the research study on factors associated with the initiation of breastfeeding, which has the authorization of the Ethics Committee of the Cayetano Heredia National Hospital (Code No. 133-015), subsequently we proceeded to review in the literature instruments that evaluate the elements we wanted determine

then we prepared the observation list, which was validated with the pilot study and later with an extended sample. Subsequently, a pilot study was applied in 30 puerperal women with the 22 items, which reduced the instrument to 7 items, with dichotomous response Yes=1 and No=0, scores greater than or equal to 5 points were considered as adequate practice.

Analysis Plan

A database was created in SPSS v 23, then descriptive and inferential statistics were applied to the scores of the watch list. To determine the construct validity, factor analysis by principal components with varimax rotation was applied, for the validation of the correlation of the model, a measure of the Kaiser-Meyer-Olkin sample adequacy (KMO) was applied, and for the estimation of the validity of the Bartlett's Chi-square model was applied. To determine reliability, the KR-20 coefficient was applied, and it was considered appropriate when the correlation was >0.700.

To determine the validity of the criterion, the Receiver Operating Characteristics (ROC) curve was applied to determine the most appropriate score sensitive to the determination of adequate childbirth practice, being considered adequate when said curve and its confidence intervals were greater than 0.50.

RESULTS

Of the study population of 422 postpartum women, we found that 76.5% were between 20 and 35 years old, 78.1% were cohabitants, 60.3% had a secondary education level, 75.7% professed the Catholic religion and 63.0% indicated that the pregnancy was unplanned. The average score obtained was 5 points, with a range between 0 and 7 points, the median score was 6 points. The averages were similar in the variables observed (Table 1).

	n	%	х	s	Min	Max	P25	P50	P75	
Age (years)										
18 to 19	38	9,0	4,6	1,6	0	6	4	5	6	
20 to 35	323	76,5	5,0	1,4	0	7	5	6	6	
36 to 43	61	14,5	5,3	1,2	2	7	5	6	6	
Marital status										
Cohabitant	329	78,1	5,0	1,4	0	7	5	5	6	
Single	49	11,6	4,7	1,7	0	6	4	5	6	
Married woman	40	9,5	5,6	0,8	2	6	5	6	6	
Other	3	0,7	4,7	1,5	3	6	4	5	6	
Educational level										
Primary	28	6,7	4,9	1,7	0	7	5	5	6	
High school	251	60,3	5,0	1,4	0	7	5	5	6	
Superior	137	32,9	5,1	1,4	0	6	5	6	6	
Language										
Spanish	356	85,4	4,9	1,5	0	6	4	5	6	
Spanish and Quechua	42	10,1	5,5	1,0	2	7	5	6	6	
Spanish and other	19	4,6	5,4	1,0	2	6	5	6	6	
Religion										
Catholic	318	75,7	4,9	1,5	0	7	4	5	6	
Mormon	2	0,5	5,5	0,7	5	7	5	6	6	
Adventist	5	1,2	5,5	0,7	5	6	5	6	6	
Other	95	22,6	5,2	1,2	0	6	5	6	6	
Planned pregnancy										
Yes	155	37,0	5,0	1,3	0	6	5	6	6	
No	264	63,0	5,0	1,5	0	7	5	5	6	
Total	422	100,0	5.0	1,4	0	7	5	6	6	

Table 1. Descriptive of Watchlist Scores

Source: Data Collection Form



Figure 1. Sedimentation of Appropriate Breastfeeding Practice Watchlist Dimensions

To determine construct validity, the sedimentation of the data indicates that only two dimensions passed the hurdle of 1 to be considered in the model (Figure 1).

Tomico's proposal (6) was modified, where the sedimentation graph obtains 2 of the 3 areas originally proposed: baby position with 3 items (baby in close contact with its mother, baby's head and body aligned, baby's body attached to the breast) and infant position with 4 items (baby's body touches the breast, relaxed and comfortable mother, mouth wide open and milk coming out of the other breast). The commonalities found reflect the correspondence with the correlations, and the correlations were high for both the first component that has three items, and for the second component with 4 items. Bartlett's Chi-square sphericity test was significant (p<0.001) and the KMO=0.751 indicating that the model is adequate for determining the appropriate practice of breastfeeding. The total reliability of the instrument was 0.720, considering it a reliable instrument (Table 2).

To determine the sensitivity of the scale with scores equal to or greater than five points, it was found that the area under the ROC curve was 0.697 95% CI 0.55-0.84, finding that with this score there is a sensitivity of 86% for women over 18 years of age and answered positively to the question that they were in "skin-to-skin" contact with their baby immediately after delivery for at least one hour (Figure 2).

DISCUSSION

The WHO recommends initiating breastfeeding within the first hour after birth (7). In Ethiopia, a study showed that 83.7% of mothers started breastfeeding within one hour after birth. Among the factors that were associated with the early onset of breastfeeding, reading newspapers or magazines almost every day, and the child's weight at birth were found >=2.5 kg, has attended a formal school and listened to radio less than once a week (8). Another study in Nigeria found an association with early initiation of breastfeeding (before the time of birth) in those

mothers who gave birth in a nursing home.

health, vaginal delivery, multiparity and non-working mothers (9).

The protein concentration in breast milk in the colostrum stage between the first and fifth day has a lower energy concentration and higher protein content, including lactoferrin, IgA, minerals, cholesterol and essential fatty acids (10).

A study carried out in Spain identified in mothers who continued breastfeeding for at least more than three months, differences were more marked in those who wanted to breastfeed during pregnancy (90.4%), sufficient dedication of the health center staff (81%) and did not have problems at home during the first month (44%). (11) Arroyo-Cabrales argues that it is important to promote breastfeeding from the delivery room (12).

Changes in delivery assistance and hospital interference: the delay in the onset of breast sucking can bring subsequent inconveniences for breastfeeding. The nipple induces rejection of nipple sucking, as the latter requires a greater effort on the part of the child. Applying too much anesthesia during labor; maintain a fixed and non-spontaneous schedule (12). Gorrita et al (2) argue that the 280 days of pregnancy are generally not enough to educate mothers about breastfeeding, so the use of multiple teaching channels for our pregnant women would be the most appropriate. The National Guidelines on Sexual and Reproductive Health prepared by the Ministry of Health of Peru (14) provide for at least 6 prenatal care sessions to be considered controlled, and in the fourth care (27 to 29 weeks) it would be appropriate to provide counseling on breastfeeding.

In Peru, apart from prenatal care consultations, education sessions are also held in what is called Obstetric Psychoprophylaxis or preparation for childbirth, where it is regulated (15) that training in breastfeeding should be provided, we suggest that emphasis should be placed on the first six points of the instrument, such as: baby in close contact with its mother, baby body well held, baby body touches breast, mother relaxed and comfortable, baby's mouth wide open.

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Item	С	ommonality	Compone	Components	
	Extraction		1	2	- 11120
Dimension 1					
1 Baby in close contact with its mother		0,720	0,848	-	0,634
2 Baby's head and body aligned		0,762	0,873	-	0,618
3 Baby's body well secured		0,802	0,883	-	0,581
Dimension 2					
4 Baby's body touches the breast		0,472	-	0,527	0,690
5 Relaxed Mother		0,573	-	0,650	0,672
6 Open mouth		0,579	-	0,760	0,766
7 Milk comes out of the other breast		0,077	-	0,272	0,730
	Total	K	/IO=0.751; p<0.001		0,720



Figure 2. ROC curve for determining proper breastfeeding practice

The National Guidelines on Sexual and Reproductive Health of the Ministry of Health of Peru describe that immediately after delivery, the child should be placed on the mother's chest for thirty minutes to stimulate the nipple, which helps to improve the mother-child relationship and the early initiation of breastfeeding (14). If the newborn is not separated from its mother and is placed in a prone position on the mother's womb, without clothes, it will be observed that it will crawl itself to its mother's breast by sucking correctly in about 70 minutes, in 90% of cases, which will lead to a longer duration of breastfeeding (1). In these conditions we can also evaluate the correct suction by taking 6 points described in our instrument such as: baby in close contact with its mother, baby's body well attached, baby's body touches the breast, mother relaxed and comfortable, baby's mouth wide open (14,16).

There are situations in which breastfeeding is not contraindicated, such as in cases of Hepatitis A, B, C, diabetes, thyroid function disorders, and that have not been studied in this work, as in the case of twins, the breastfeeding technique can also be evaluated using our instrument (13)

Within a community, from the key actors who are the people capable of influencing the community such as neighborhood leaders, community support groups can also be formed to protect and promote successful breastfeeding, this is a group made up of pregnant women, mothers who are breastfeeding or who have breastfed and caregivers, who participate in sessions of mutual help groups, in order to receive information, in these cases we can use the points described in our instrument for the teaching, evaluation and reinforcement of the breastfeeding technique of guide mothers and support groups (17). Therefore, with an adequate practice of breastfeeding, the mother, the child, the family and society will be able to enjoy its benefits (18,19).

The main contribution of this research is that it allows us to obtain an instrument that allows us to know if we are facing an adequate breastfeeding technique or not, in order to correct or reinforce it. Taking into account that it is immediately after childbirth, where we must focus on the start of breastfeeding and the appropriate way to do it. (4)

In the present research, the validity of the content was not determined, since it already had it, because we took the instrument proposed by Tomico (6), which had three areas: baby's position, infant position and signs of effective milk transfer, which consisted of 22 ITEMS with a dichotomous YES/NO response. It is concluded that the watch list was adequate for the identification of adequate breastfeeding practice in the immediate puerperium.

REFERENCES

- Lucchini C, Uribe C. Determinants for successful breastfeeding: comprehensive intervention vs. standard care. Randomized controlled clinical trial. Rev Chil Pediatr 2013:84(2):138-144.
- Cap R, Bowl Y, Cap Y, Brito B. Maternal stress and anxiety and its relationship with breastfeeding success. Rev Cub Pediatr 2013; 86(2):179-188.
- Macías S, Rodríguez S, Ronayne de Ferrer P. Breast milk: composition and conditioning factors of breastfeeding. Arch Argent Pediatr 2006; 104(5):423-430.
- Cerda L. Breastfeeding and care management. Rev Cubana Enferm 2011; 27(4):327-336.
- Quintero E, Roque P, De la Mella S, Fong G. Correct positions and a good latch when breastfeeding: key to success in breastfeeding. Medicent Electron 2014; 18(4):156-162.
- 6. Tomico del Río, M. (2013). Breastfeeding Workshop (Tetaller). Primary Care Pediatrics, 15, 109–116. [Link]
- World Health Organization. Early initiation of breastfeeding. (Online). [Link]

- Getnet M, Regassa N, Dejenie T, Mengistu Z. Early initiation of breastfeeding amog mothers of children under the age of 24 months in Southern Ethiopia. Int Breastfeeding J. 2017; 12(1):2-9
- Berde A, Sogül S. Determinants of early initiation of breastfeeding in Nigeria: a population-based study using the 2013 demograhic and health survey data. BMC Pregancy and Childbirth 2016; 16(32):2-9.
- Sánchez C, Hernández A, Rodríguez A, Rivero M, Cubero J. Analysis of the nitrogen and protein content of breast milk, day vs night. Nutr Hosp 2011; 26(3):511-514.
- García M, García S, Pi M, Ruiz E, Parellada N. Breastfeeding: can health workers positively influence its duration? Aten Primaria 2005; 35(6):295-300
- Arroyo-Cabrales L. Colostrum: A Good Start in Life (Editorial). Rev Perinatol Reprod Hum 2010; 24(4):219-220.
- Madrid Health Service. General Directorate of Specialized Care. Protocol for Breastfeeding in Hospitalization. 2014

- 14. Ministry of Health of Peru. Directorate-General for People's Health. Executive Directorate of Comprehensive Health Care. National Guidelines on Sexual and Reproductive Health. File. 2004.
- Ministry of Health of Peru. General management of people. Guide to obstetric psychoprophylaxis and prenatal stimulation. 2011:1.19
- Otal-Lospaus S, Morera-Liánez L, Bernal-Montañes MJ, Tabueña-Acin J. Early contact and its importance in breastfeeding versus cesarean section. Midwives Prof. 2012; 13(1):4
- 17. Ministry of Health of Peru. General Directorate of Health Promotion. "Technical Guide for the Implementation of Community Support Groups to Promote and Protect Successful Breastfeeding." 2014;16,17.
- UNICEF. Breastfeeding. [online]. 2012 cited 2015 January 12. [Link]
- Ministry of Public Health of Ecuador. Standard for implementation and operation of institutional lactation facilities in the public and private sectors in Ecuador. [online].2011 [cited 2015 February]. [Link]