

Impact of Knowledge and Attitude of Primiparous Mothers on Achieving Exclusive Breastfeeding Practices in Thatta, Pakistan

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Abstract

Objective: Breastfeeding provides infants with numerous longer-term and short-term health benefits. The World Health Organization (WHO) recommends exclusive Breastfeeding (EBF) for the first six months of life. However, the proportion of EBF in Pakistan is 48%. This study aimed to determine the prevalence of exclusive breastfeeding and associated factors influencing exclusive breastfeeding in primiparous mothers.

Methodology: A secondary analysis was performed on data extracted from the survey, implemented in Thatta, registered in the Maternal and Neonatal Health Registry. To identify the factors associated with exclusive breastfeeding among primiparous mother, Cox proportional regression was used, and prevalence ratios were computed for each of the independent variables.

Results: The prevalence of exclusive breastfeeding among primiparous mothers was 51.1%. In the multivariable Cox proportional algorithm, exclusive breastfeeding was positively associated with adequate knowledge (PR = 3.09, 95% CI: 2.00 - 4.76), positive maternal attitude (PR: 1.54, 95% CI: 1.09 - 2.17), and lastly results show that mothers whose baby was admitted in NICU after birth are more likely to non-exclusively breastfeed their child as compared to mothers whose baby were not admitted to NICU after birth (PR: 1.60, 95% CI).

Conclusion: Adequate knowledge and positive breastfeeding attitude can predict EBF practices among primiparous women. Therefore, there is a need to intensify the efforts to promote breastfeeding and maternal education about the safety, benefits, and effectiveness of exclusive breastfeeding to improve primiparous women's breastfeeding knowledge and attitude. Furthermore, large scale community based qualitative research is strongly recommended to investigate the perception and cultural factors affecting the practices of EBF among primiparous mothers.

Keywords: Breastfeeding; Exclusive Breastfeeding Practices; Pakistan; Primiparous

Introduction

Breast feeding is a natural, wholesome and the most nutritive mode of feeding infants. Full of vitamins, minerals, fats, and antibodies, breast milk sustains the ability to cater an infant's complete nutritional needs for the first six postnatal months, and more than half dietary needs of the second half of the first postnatal year and one-third of the second postnatal year [1]. World Health Organization (WHO), American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists strongly recommend Exclusive Breastfeeding (EBF) for the first six months of neonatal life [2]. The term, Exclusive Breast-feeding (EBF), implies that the child re-

ceives only breast milk. No formula, liquid, solid, or even water is administered to the child, except any oral rehydration solution, vitamin, mineral, or medicine the child may need [3].

Researches and studies conducted to evaluate their effects on a child's growth has shown that children who were on exclusive Breastfeeding (EBF) for the first six months of life developed stronger cognitive skills, higher IQ scores in later childhood, robust immunity, less risk of developing obesity in childhood and adolescence, reduced incidence of diarrhea and pneumonia, and less likelihood of developing some atopic infections, autoimmune diseases and leukemia in childhood [3-9]. Despite such promising benefits and vigorous interventions employed throughout the world to promote this practice, *Global Breastfeeding Scorecard, 2017*, which evaluated 194 countries, unexpectedly showed significantly low scores. The report showed that, on average, only 40% of children under 6 months of age receive Exclusive Breastfeeding (EBF) worldwide. Only 23 countries among the pool of 194 had EBF rates above 60%, while the rates of continued breastfeeding up to 1 year of age were around 74% [10]. The Lancet in its 2016 edition, estimated that 823,000 deaths of infants under 5 years of age can be prevented each year globally through optimum breastfeeding practices [11].

Considering the ramifications of such low EBF scores, studies have been conducted throughout the world to assess factors associated with it. It was concluded that maternal education, health, socio-economic status, multiple pregnancies, and antenatal care directly correlates with EBF practices in poor and middle-income countries [12-19]. Pakistan has a distressingly low rate of exclusive breastfeeding, with only 48% of infants breastfed exclusively for six months [20]. To the best of our knowledge, no studies have been conducted on EBF practices amongst primiparous mothers in Pakistan. Since these women are experiencing motherhood for the first time, they must be provided with essential guidance and information to help navigate this period, which is vital for child growth and development. This can also help avoid non-exclusive breastfeeding and formula feeding practices. Therefore, we explored the impact of knowledge and attitude on EBF in Pakistani primiparous mothers to understand their behaviors and the factors that may impact their desire to breastfeed. Health care professionals and policymakers may use such knowledge to design and implement effective strategies to help promote EBF practices in Pakistan.

Methodology

Data collection

This research paper presents a secondary analysis of data collected from a cross-sectional study, implemented in the district of Thatta, registered in the Maternal and Neonatal Health Registry (MNHR). A systematic sampling technique was used to access knowledge, attitudes, and practices of mothers regarding EBF and maternal demographics and reproductive characteristics. MNHR is a population-based study for low- and middle-income countries (LMICs) to assess pregnancy-related outcomes. In MNHR, two sub-districts of Thatta are divided into eight clusters, including urban and rural areas, and the survey was implemented in all eight clusters. The total survey population consisted of 405 women with a baby between the age 6 to 11 months. Total of 397 women provided complete information, out of which, 99 mothers were primiparous, who were the main subjects of our study.

Study tool

To assess the knowledge of mothers, a short questionnaire comprising 9 questions was used. Each correct answer from the mother awarded them a single point; mothers who scored a 70 or more were considered to have adequate knowledge of breastfeeding, while those who were scored below 70 were considered inadequate. To measure the attitude of mothers towards breastfeeding, they were asked a series of questions that required "Positive", "Neutral," or "Negative" responses, which were then measured on the IOW infant feeding attitude scale (IIFAS) [21]. Based on the responses, the attitude of mothers was divided into two groups, those with a positive attitude (scoring 70% or above) and those with a negative attitude (scoring below 70%). Basic demographic details and information regarding the mode and location of delivery, obtained from the study participant.

Data processing and analysis

The analysis was performed with the SPSS version 22.0 and Stata windows version 16.0 statistical software analysis. To identify the factors associated with exclusive Breastfeeding, Cox proportional regression was used, and prevalence ratios were computed for each independent variable with the outcome variable. In the initial stage, univariate analysis was computed. For univariate analysis, the cut-off of p-value was kept at 0.25. The association was presented using a prevalence ratio with a 95% confidence interval. All variables significantly associated in univariate analysis were included in the final model using a multivariable cox proportional algorithm, and adjusted prevalence ratio was calculated for each of the variables significantly associated with the outcome variable in the final model.

Results

A total sample of 99 primiparous mothers was selected and analyzed from the survey conducted in Thatta, a ruler area of Sindh, Pakistan. The background characteristics of the respondents are presented in table 1. Among 99 children, 28.3% were premature. There were more male (51.5%) than female (48.5%) children. From the total sample of the mother population, approximately 53.5% and 33% were ≤ 24 years of age and literate. Only 28.3% of the mothers were employed, and only 46.5 percent of fathers were educated. 85.9% of the families belonged to the lowest wealth quintile with less than PKR 7,500 monthly income.

Characteristics (n = 99)	n (%)
Sex of the infant	
Female	51 (51.5)
Male	48 (48.5)
Maternal age (in years)	
< 24	53 (53.5)
24 - 27	35 (35.4)
≥ 28	11 (11.1)
Maternal occupation	
Employed	28 (28.3)
Housewife	71 (71.7)
Maternal education	
Illiterate	66 (66)
Literate	33 (33)
Educational status of Husband	
Illiterate	53 (53.5)
Literate	46 (46.5)
Family monthly income	
Less than 7500	85 (85.9)
More than or equal to 7500	14 (14.1)
Gestational age	
Preterm	28 (28.3)
Term	71 (71.7)
Birthplace	
Health facility	85 (85.9)

Home	14 (14.1)
Mode of delivery	
Assisted delivery	29 (29.3)
Normal Vaginal delivery	70 (70.7)
Attendant of the delivery	
Doctor	47 (47.5)
Nurses/Midwives	28 (28.3)
Traditional birth attendant (TBH)	17 (17.2)
Lady Health Visitor (LHV)	7 (7.1)
Time of onset of breastfeeding (h)	
Immediately/ Within one Hour	14 (14.1)
After one hour	85 (85.9)
Knowledge related to EBF	
Adequate	62 (62.6)
Inadequate	37 (37.4)
Attitude towards EBF	
Positive	84 (84.8)
Negative	15 (15.2)
Problems encountered by mother in EBF	
No	78 (78.8)
Yes	21 (21.2)
Support of husband or any other family member	
No	34 (34.3)
Yes	65 (65.7)
Admission into NICU	
No	32 (32.3)
Yes	67 (67.7)
Exclusive breastfeeding for 6 months	
No	48 (48.5)
Yes	51 (51.5)

Table 1: Characteristics of mothers, children and breastfeeding factors.

Majority (85.9%) of the mothers had delivered their babies in a health facility. Most of these were normal deliveries (70.7%) assisted by doctors (47.5%) and 28.3% by Nurses or midwives. 85.9% of the children-initiated breastfeeding after one hour of birth. 62.6% of mothers had adequate knowledge about EBF, and 84.8% expressed a positive attitude towards Breastfeeding (Scored based on table 2 and 3, respectively). However, only 51 (51.5%) practiced exclusive breastfeeding for six months. From the total sample population, only 21.2% of respondents faced problems while breastfeeding. Also, 65.7% of the mothers reported that they had received family/partner support for EBF.

Knowledge	Correct n (%)	Incorrect n (%)
How soon mother should initiate breastfeeding?	77 (77.78)	22 (22.22)
What mother should do with first milk or colostrum?	73 (73.74)	26 (26.26)
What is the recommended duration of EBF?	77 (77.78)	22 (22.22)
Foods or Fluid recommended to infant for First six months	74 (74.75)	25 (25.25)
Is breastfeed alone is enough for an infant?	93 (93.9)	6 (6.1)
Does Exclusive breastfeeding prevent child from respiratory and diarrheal disease?	98 (99)	1 (1)
Through good nutrition mother can sustain exclusive breastfeeding	63 (63.64)	36 (36.36)
Does EBF can prevent pregnancy	62 (62.63)	37 (37.37)

Table 2: Knowledge of mother regarding breastfeeding.

Attitude	Positive n (%)	Neutral n (%)	Negative n (%)
Feels good to breastfeed my baby exclusively	97 (97.98)	1 (1.01)	1 (1.01)
Mother find difficult to breastfeed my baby	14 (14.14)	12 (12.12)	73 (73.74)
Mother feel confident articulating her breast milk to be provided to her baby if she is not available	28 (28.57)	11 (11.22)	59 (60.20)
Breastfeeding is easier than infant formula milk	88 (88.89)	1 (1.01)	10 (10.10)
Does Breastfeeding is a good way to decrease family expenses	95 (95.56)	0 (0)	4 (4.04)
Does Breastfeeding can enhance bonding between mother and infant	92 (92.93)	0 (0)	7 (7.07)
Mothers should not breastfeed in public places	50 (50.51)	7 (7.07)	42 (42.42)
Do Breastfed babies are healthier than formula-fed infants	95 (95.96)	1 (1.01)	3 (3.03)
Do Benefits of breastfeeding are limited for a specific period	77 (77.78)	7 (7.07)	15 (15.15)
Does Breast milk is the ideal food for babies	99 (100)	0 (0)	0 (0)

Table 3: Attitude of mothers towards breastfeeding.

Table 4 shows variables significant in the univariate analysis, including their unadjusted prevalence ratios (95% CI). Independent variables that are significantly related to the outcome variable in the univariate analysis include the admission of a baby in NICU after birth, knowledge of mothers related to exclusive breastfeeding, mothers’ attitude towards EBF, and support of a husband or any other family member during breastfeeding. All variables significantly associated in univariate analysis were included in the final model using a multivariable Cox proportional algorithm. The adjusted prevalence ratio was calculated for each variable significantly associated with the final model’s outcome variable.

Variables	Unadjusted Prevalence Ratios	P-value	Adjusted Prevalence Ratios	P-value
Sex of the infant				
Female				
Male	1.15 (0.65 - 2.03)	0.61		
Birthplace				
Health facility				
Home	1.03 (0.46 - 2.31)	0.93		
Mode of delivery				
Assisted				
Normal Vaginal delivery	1.11 (0.59 - 2.10)	0.73		
Attendant of the delivery				
Doctor		0.49		
Lady Health Visitor (LHV)	1.11 (0.32 - 3.79)			
Nurses/Midwives	1.49 (0.76 - 2.92)			
Traditional birth attendant (TBH)	1.68 (0.79 - 3.57)			

Support of husband or any other family member				
Yes		0.05		
No	1.76 (0.99 - 3.09)			
Admission into NICU				
No				
Yes	1.77 (1.00 - 3.12)	0.04	1.60 (1.15 - 2.23)	0.005
Knowledge related to breastfeeding				
Adequate Knowledge				
Inadequate Knowledge	3.35 (1.83 - 6.10)	0.001	3.09 (2.00 - 4.76)	0.001
Attitude of mothers towards breastfeeding				
Positive Attitude				
Negative Attitude	1.86 (0.97 - 3.58)	0.061	1.54 (1.09 - 2.17)	0.013
Time of onset of breastfeeding (h)				
Within one Hour				
After one hour	2.47 (0.75 - 7.94)	0.13		

Table 4: Factors associated with exclusive breastfeeding

Table 4 shows that mothers who have inadequate knowledge about EBF are 3.09 times more likely to breastfeed their child non-exclusively than mothers with adequate knowledge (PR = 3.09, 95% CI: 2.00 - 4.76). Attitude of mothers towards breastfeeding was significantly associated with non-exclusive breastfeeding. It means that mothers with negative attitudes are 1.76 times more likely to breastfeed their child non-exclusively as compared to mothers with positive attitude (PR: 1.54, 95% CI: 1.09 - 2.17). Lastly, admission of a baby in NICU was also significantly associated with non-exclusive breastfeeding, mothers where less likely to exclusively breastfeed babies admitted in NICU compared to mothers whose baby were not admitted to NICU after birth (PR: 1.60, 95% CI: 1.15 - 2.23).

Discussion

Exclusive breastfeeding is pivotal for the growth and development of newborns, especially for the first 6 months of life. Breastfeeding is known as the best form of infant nutrition, not only because of its direct nutritional benefits for the infant but also because of its immune defense mechanism and numerous other physiological benefits to the mother and infant [22].

In this study, we attempted to assess the prevalence of exclusive breastfeeding (EBF) among primiparous mothers in Thatta, Pakistan. We evaluated their socio-demographic characteristics, their knowledge, and attitudes towards EBF. The prevalence of EBF in our study among primiparous mothers was 51.5%; this finding was higher than that reported in a study conducted in Kenya (39.5%) and Ivory Coast (16.67%) [23,24]. This disparity is influenced by the fact the in our study, adequate knowledge regarding breastfeeding was found to be a strong predictor of EBF practices among primiparous mothers; the higher the level of adequate knowledge of EBF among women, the greater the prevalence.

Adequate knowledge about EBF can be used as an effective tool to popularize breastfeeding amongst new mothers. It is found that mothers without sufficient and accurate knowledge about EBF suffer from poor breastfeeding practice and prematurely ceasing breastfeeding. In our study 63.6% of mothers had adequate knowledge regarding the breastfeeding practices, which was much higher than that reported in several Indian studies conducted in (Andhra Pradesh (2%), Karad (31.42%), Central India (53.3%) and studies conducted in Ethiopia (13.5%), Nigeria (41.3%) [25-29]. These findings indicate a large variance in the knowledge of EBF within continents and countries. The results can also be influenced by various methodologies for estimating the knowledge and practices of EBF.

Meanwhile, over 84.4% of the respondents had a positive attitude to breastfeeding and a statistically significant correlation was observed between breastfeeding attitude and exclusive Breastfeeding (EBF) practices. This finding is in line with the several studies conducted in Ethiopia and Kenya, where it was found that a positive attitude leads to better EBF practices [23,28].

In this study, only 14.1% of mothers complied with the WHO recommendations of starting breastfeeding within 1 hour of delivery [30]. In comparison to our finding's studies conducted in Ethiopia and Kenya indicated that 64.3% and 46.2% of mothers initiated breastfeeding within 1 hour of delivery, which was comparatively lower than this study [23,28]. There remains a strong need to promote early initiation of breastfeeding after birth in Pakistan among primiparous mothers. Hospitals need to play a pivotal role in emphasizing the importance of initiating early breastfeeding. Hospital policies must be revised, so the newborn is placed in the same room as the mother throughout the hospital stay; this can help mothers bond with their baby after delivery, encouraging the practice of early breastfeeding.

In a study conducted in the United States of America, NICU admissions showed a positive influence on breastfeeding practices [31]. The finding is surprising as it counters our study results, which showed NICU admission had a negative association with exclusive breastfeeding. Our results may be attributed to the fact that primiparous mothers who are separated from their children are unable to develop a strong bond with them. There can be an immense negative mental impact on mothers who see their first-born suffering in the NICU.

In several studies, breastfeeding promotion strategies immediately after birth have shown a significant influence on EBF prevalence [3,32,33]. Although in most of the communities breastfeeding is a universal practice and social norm, it is also a learned activity and can be affected by many factors, including socio-economic, cultural, and educational levels [34]. A study conducted in Central India showed a significant increase in knowledge of mothers who received counseling sessions, indicating the need and positive impact of counseling primiparous mothers on the importance of EBF [27]. Therefore, there is a need for increased efforts to ensure that women have universal access to current knowledge of EBF and its benefits. Practical demonstrations and EBF information should be given immediately after delivery rather than during pregnancy. Trained midwives and Health workers can also assist women immediately after childbirth to initiate breastfeeding. They can also provide practical help for women with attachment problems and how to carry the baby during breastfeeding. It is also necessary to use printed materials with clear instructions (brochures & images) and mass media, as it has been shown to improve awareness and positive attitudes towards EBF elsewhere [35,36].

In Pakistan, neonatal infections and malnutrition are the most common factors associated with infant morbidity and mortality. Promoting healthcare services in Pakistan would support breastfeeding campaigns and help enhance other neonatal and maternal outcomes.

This analysis has several limitations. Firstly, it is not possible to determine causal associations with determinants due to the study's cross-sectional nature. Secondly, the findings cannot be generalized to all primiparous mothers in Pakistan because the survey was limited to areas of Sindh that were registered with MNHR.

Recommendations

The United Nations Children's Fund (UNICEF) and WHO recommended the following guidelines to encourage mothers to develop and maintain exclusive six-month breastfeeding [1]:

- Initiation of breastfeeding within the first hour of life.
- Exclusive breastfeeding for 6 months - that is, the baby only receives breast milk without any additional food or drink, not even water.
- On-demand breastfeeding - i.e. day and night, as often as the child wants.

- No use of pacifiers or nursing bottles.

Conclusion

It is concluded that significant efforts need to be made to prepare health workers and the community with explicitly tailored strategies for neonatal health. Breastfeeding is of nutritional and health value and is also essential for the bond between infant and mother. Exclusive breastfeeding reduces child mortality caused by common infant diseases like pneumonia and diarrhea as it helps recover quicker during illness. In our study, positive maternal attitude and adequate knowledge were the essential predictors for EBF. Therefore, it is crucial to promote breastfeeding and maternal education about the safety, effectiveness, and balanced breast milk status. Most importantly, it is necessary to involve NGOs (non-governmental organizations), the society of obstetricians, and media campaigns to promote and further spread the message of exclusive Breastfeeding in Pakistan.

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