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Original Research Article

Breast feeding practices: positioning and attachment among postnatal mothers - a hospital based cross sectional study in Nagpur, Maharashtra

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ABSTRACT

Background: Breastfeeding is a critical aspect of infant care, contributing significantly to the overall health and well-being of newborns. Despite the established benefits of breastfeeding, challenges persist, with proper positioning and attachment playing pivotal roles in ensuring its success. This study aims to evaluate breastfeeding techniques among postnatal mothers and identify the factors that influence proper positioning and attachment during breastfeeding.
Methods: A cross-sectional study was conducted among 265 mothers and infants in a tertiary health care centre in central India. Breastfeeding techniques were assessed using a checklist aligned with the Integrated Management of Neonatal and Childhood Illness guidelines. The key outcome variables included the percentage of mothers demonstrating proper positioning, correct attachment, and effective suckling. Data analysis was conducted using Epi Info software, with relevant statistical tests applied to interpret the results.
Results: The proportion of mothers having correct breastfeeding position, attachment and effective suckling was 51.7%,75.8% and 74.7% respectively. Maternal educational status, parity, family type and education on breastfeeding technique are identified as significant factors associated with proper breastfeeding techniques. Term babies and those with a normal birth weight show significantly better attachment and more effective suckling compared to preterm and low birth weight infants.
Conclusions: The findings emphasize the need for targeted education and support to enhance breastfeeding practices, contributing to improved maternal and infant health outcome.

Keywords: Breastfeeding, Positioning, Attachment, Postnatal mothers

INTRODUCTION

Breastfeeding involves transfer of milk from a mother to her baby.[1] This essential practice is crucial for both the health of the infant and the mother as well as in fostering a strong mother-infant bond. As the natural initial nourishment for newborns, breast milk supplies all the necessary energy and nutrients required during the initial months of an infant's life.[2] Successful breastfeeding is a blend of art and science. Correct positioning and proper attachment are crucial for starting and maintaining exclusive breastfeeding. Positioning involves how the baby is held in relation to the mother's body, while attachment refers to the baby having sufficient areola and breast tissue in their mouth. Improper breastfeeding techniques can lead to inadequate milk transfer and nutritional deficiencies in infants.[3]

Although breastfeeding is nearly universal among Indian mothers, incorrect methods often result in early weaning and a shift to formula feeding. Despite being a natural act, breastfeeding is a learned behavior. In 2005, the

Integrated Management of Neonatal and Childhood Illness (IMNCI) initiative was launched, which advocated for a systematic evaluation of breastfeeding and emphasized counselling mothers on proper positioning and attachment of the infant to the breast to ensure effective suckling.[4]

In India, health behaviors are monitored through large-scale surveys like the National Family Health Survey. However, these surveys do not cover data on correct breastfeeding positioning and attachment practices.[5] Therefore, we undertook this comprehensive study to assess breastfeeding techniques among postnatal mothers who delivered at a tertiary care center in Nagpur, Maharashtra and to identify the factors associated with proper positioning and attachment.

METHODS

This cross-sectional study was conducted at Government Medical College, Nagpur, a tertiary care teaching center in Central India's Maharashtra. The study spanned four months, from July to October 2023. All mothers and their newborns in the postnatal wards, delivered during this period, were considered mother-early neonate units and included in the study. Mothers who were not breastfeeding their babies and babies with any congenital or medical issues were excluded from participation.

As reported in the study by Davra K et al, proportion of mothers practicing proper breastfeeding position to be 45.2%, with 95% confidence interval and 6% absolute precision, the sample size was calculated to be 265.[5] The study was commenced after obtaining the necessary ethical clearances from the Institutional Ethics Committee.

Mothers were briefed about the study's objectives in their vernacular language, and their written informed consent was obtained. The data collection tool comprised two sections: the first section gathered socio-demographic and clinical information, including the mother's age, educational background, occupation, family structure, whether she received instruction on breastfeeding techniques, the baby's gestational age, birth weight, etc. The second section of the data collection tool involved an observation checklist for assessing breastfeeding technique, adhering to the IMNCI guidelines (Table 1), with utmost privacy ensured for the mothers during the process.

The breastfeeding procedure was monitored for a 5-minute duration. Prior to the main study, the research tool underwent pilot testing, and the finalized paper-based version was employed for data collection. The operational definitions utilized in this study are detailed in Table 1. Pre term baby was defined as a newborn born before 37 weeks of gestation. Once data collection was completed, the mothers were counselled and instructed on proper breastfeeding techniques, as well as the importance and benefits of exclusive breastfeeding. The association between the mother's age, education level, family type, occupation, parity, gestational age, birth weight, etc., and breastfeeding technique were noted.

Statistical analysis

The collected data were entered into a Microsoft Excel spreadsheet and analyzed using Epi Info Software. The outcome variables were expressed as the percentage of mother-child units practicing good position, good attachment, and effective suckling techniques. Chi-square test was employed to explore the association between various factors and breastfeeding practices. A result with p value less than 0.05 was considered to be statistically significant.

RESULTS

In the study, out of 265 postnatal mothers, the largest portion, 48.30%, was in the 20 to 25 age range, followed by 32.83% in the 25 to 30 age group. In terms of education, 96 mothers (36.23%) had completed higher secondary school, 78 (29.43%) had primary-level education, 15 (5.66%) were either graduates or held higher degrees, and 18 (6.79%) were illiterate. A significant majority, 230 mothers (86.79%), were homemakers, and more than half, 140 (52.83%), belonged to joint families.

Of the post-natal mothers, 99 (37.36%) were primipara, while 102 (38.49%) were having their second child. There were 32 (12.07%) newborns born prematurely, and 80 (30.19%) were classified as having low birth weight. A total of 176 (66.42%) mothers received education or counselling on proper breastfeeding practices either during their prenatal appointments or after giving birth. The socio-demographic and clinical characteristics of the participants are detailed in Table 2.

Table 1: Operational definitions of the variables of interest used in this study.

Variable	Criteria	Classification
Positioning	1.Infant's head and body straight 2.Infant facing the mother's breast with nose opposite the nipple 3.Infant's body close to the mother's body 4.Mother supporting infant's whole body	Good position-If 3 or 4 criteria are met Not well positioned-If 1 or 2 criteria met No proper position at all-If no criteria met
Attachment	1.Chin touching breast	Good attachment-3 or 4 criteria met

Continued.

Variable	Criteria	Classification
	2.Mouth wide open 3.Lower lip turned outward	Not well attached-If 1 or 2 criteria met No attachment at all-If no criteria met
Suckling	Infant taking slow deep sucks, sometimes pausing Infant having rapid shallow sucks	Good Suckling Not suckling effectively

Table 2: Socio-demographic and clinical characteristics of mother-early newborn dyads assessed for breastfeeding (n=265).

Variables	N (%)
Age of the mother (in years)	
<20	31 (11.7)
20-25	128 (48.3)
26-30	87 (32.8)
≥30	19 (7.2)
Education	
Illiterate	18 (6.8)
Primary	78 (29.4)
Secondary	58 (21.9)
Higher secondary	96 (36.2)
Graduate and above	15 (5.7)
Occupation	
Homemakers	230 (86.8)
Employed	35 (13.2)
Type of family	
Nuclear	78 (29.4)
Joint	140 (52.8)
Three generation	47 (17.8)
Received breast-feeding education	
Yes	176 (66.4)
No	89 (33.6)
Parity	
1	99 (37.4)
2	102 (38.5)
3	55 (20.7)
4 and above	09 (3.4)
Mode of delivery	
Normal vaginal delivery	190 (71.7)
Caesarean section	66 (24.9)
Assisted vaginal delivery	09 (3.4)
Sex of the newborn	
Male child	143 (54.0)
Female child	122 (46.0)
Gestational age	
Term birth	233 (87.9)
Pre-term birth	32 (12.1)
Birthweight (in grams)	
<2500	80 (30.2)
≥2500	185 (69.8)

Table 3: Factors related to mother affecting position and attachment (n=265).

Variables	N	Good position N (%)	p value	Good attachment N (%)	p value
Age of the mother (in years)					
<20	31	14 (45.2)	0.05	19 (61.3)	0.17
20-25	128	63 (49.2)		99 (77.3)	

Continued.

Variables	N	Good position N (%)	p value	Good attachment N (%)	p value
26-30	87	54 (62.1)		69 (79.3)	
≥30	19	6 (31.6)		14 (73.7)	
Education					
Illiterate	18	7 (38.9)	0.028	11 (61.1)	0.02
Primary	78	35 (44.9)		51 (65.4)	
Secondary	58	26 (44.8)		45 (77.6)	
Higher secondary	96	57 (59.4)		81 (84.4)	
Graduate and above	15	12 (80.0)		13 (86.7)	
Occupation					
Homemakers	230	115 (50.0)	0.156	173 (75.2)	0.538
Employed	35	22 (62.9)		28 (80.0)	
Type of family					
Nuclear	78	44 (56.4)	0.526	71 (91.0)	0.001
Joint	140	68 (48.6)		105 (75.0)	
Three generation	47	25 (53.2)		25 (53.2)	
Taught breast-feeding technique					
Yes	176	123 (69.9)	<0.001	147 (83.5)	<0.001
No	89	14 (15.7)		54 (60.7)	
Parity					
1	101	31 (30.7)	<0.001	78 (77.2)	<0.03
2	103	61 (59.2)		85 (82.5)	
3	55	42 (76.4)		34 (61.8)	
4 and above	6	3 (50.0)		4 (66.7)	

*p value<0.05 is significant

Table 4: The infant-related factors that affect attachment and effective suckling.

Variables	N	Good attachment N (%)	p value	Effective suckling N (%)	p value
Gestational age					
Term birth	233	185 (79.4)	<0.001	180 (77.3)	0.010
Preterm birth	32	16 (50.0)		18 (56.3)	
Birthweight (in grams)					
<2500	80	37 (46.3)	<0.001	40 (50.0)	<0.001
≥2500	185	164 (88.6)		158 (85.4)	

*p value<0.05 is significant

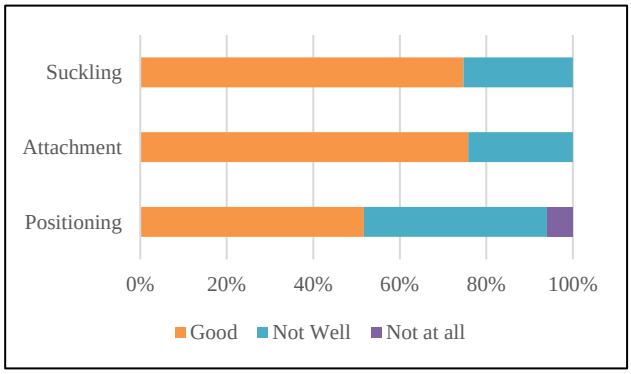

Figure 1: Assessment of breastfeeding technique as per integrated management of neonatal and childhood illness (IMNCI) guidelines (n=265).

Good position was maintained by 51.7% of the mothers during breastfeeding, meeting 3 or 4 of the criteria, while 6% did not have a proper position at all. Additionally, 75.8% of the newborns had good attachment to the breast, meeting 3 or 4 of the criteria, and 74.7% were suckling effectively. Figure 1 shows findings of breast-feeding observation.

Table 3 highlights the maternal factors influencing the position and attachment of infants during breastfeeding. A significant correlation was observed between higher educational status and improved attachment during feeding. Employed mothers and those from nuclear families also tended to have better attachment, although these findings were not statistically significant. Additionally, most mothers who received instruction on breastfeeding techniques demonstrated good attachment during feeding. A significantly higher proportion of mothers with high parity exhibited good positioning.

Similar to positioning, good attachment to the breast was predominantly observed in babies of mothers with higher education and those who had received breastfeeding instruction. Adequate attachment was also more common among babies of mothers from nuclear families

(statistically significant). However, the occupational status of the mother did not appear to influence the baby's attachment while feeding. Parity was also found to be statistically significant in relation to good attachment outcomes.

Table 4 presents the infant-related factors that affect attachment and effective suckling. The data indicates that term babies and those with a normal birth weight (≥2500 grams) show significantly better attachment and more effective suckling compared to preterm and low birth weight infants. These findings are statistically significant, underscoring the influence of birth weight and gestational age on early feeding behaviors.

DISCUSSION

In the current hospital-based cross-sectional study, it was found that a majority (42.3%) of postnatal mothers had inadequate breastfeeding positioning techniques compared to attachment techniques. Similarly, a study by Shrivastava PR et al in a tertiary care centre in West Bengal reported that only 47.4% of babies were properly positioned.[6] Various hospital-based studies conducted in India have reported that the proportion of mothers with good positioning ranges from 31% to 67%.[2,7,8] Various community-based studies have shown a higher prevalence of proper breastfeeding positioning techniques compared to the hospital-based ones.[5,9-11]

The study found that 75.8% of mothers maintained good attachment during breastfeeding, and 74.7% of infants demonstrated proper suckling. The proportion of good attachment observed in this study is slightly higher than that reported in some similar hospital-based studies conducted in the country.[2,7,8] While previous studies have reported effective suckling among infants to range from 46% to 73% our study observed a higher rate at 74.7%.[5,7,8]

As reported by Davra K et al in their community-based study in Vadodara, most studies indicate that the proportion of mothers achieving good attachment is higher than those achieving good positioning.[5] This suggests that incorrect positioning often, but not always, leads to improper attachment. Our study also reflects this observation. Various factors, such as post-caesarean pain or uncomfortable or inappropriate clothing, could contribute to faulty positioning.

Upon analysis, several maternal factors were found to influence overall positioning and attachment during breastfeeding. Specifically, the mother's educational status, parity, and whether she received breastfeeding training were significantly related to her positioning techniques. These findings align with results from various studies conducted across different regions of the country.[1,2,5,11,12]

Conversely, while maternal age, family type, and occupation were noted to affect breastfeeding positioning techniques in other studies, these factors were not found to be significant in our study.[1,2,5,12]

Consistent with findings from other studies our study also identified maternal educational status, parity, family type, and education on breastfeeding technique as significant factors associated with proper attachment during feeding.[1,2,5,11] Extensive evidence from multiple interventional studies has demonstrated that receiving proper breastfeeding technique training significantly enhances positioning and attachment capabilities during feeding.[3,4,8,13]

In our assessment of infant factors, we found that gestational age at delivery and birth weight significantly influence good attachment and proper suckling during breastfeeding. Previous research has consistently highlighted that term delivery and normal birth weight serve as predictors for the correct practice of breastfeeding techniques.[1,11]

As being a hospital-based study, this research has certain inherent limitations. Mothers were evaluated within 3-5 days postpartum, but breastfeeding techniques, which are learned behaviors, typically improve with time and practice. The act of being observed while breastfeeding may also cause mothers to alter their natural behavior. Therefore, extensive community-based studies are needed, where mothers can be observed in the comfort of their own homes, ensuring adequate privacy and confidence, unlike the hospital setting. Additionally, it was not confirmed whether mothers received guidance on proper breastfeeding techniques from a trained person, and the content of such instructional sessions was not verified. Data collection by a single trained investigator minimized observer bias. Additionally, as a single-centre, facility-based study, the findings may not be generalizable to different settings.

CONCLUSION

The study concludes that observing and correcting improper breastfeeding is utmost important. However, technique is crucial from the early postpartum period to prevent breastfeeding difficulties, thereby promoting proper and exclusive breastfeeding for newborns. With most deliveries now occurring in healthcare facilities, there is a valuable opportunity to teach and train mothers in correct positioning and attachment techniques for breastfeeding. Pregnant and lactating women should be educated on proper breastfeeding practices and their importance through health sessions and counselling by healthcare workers and grass-root health providers such as ANMs and ASHAs. Emphasizing female education appears to be a valuable long-term solution. It is also essential to ensure that healthcare workers are well-trained in breastfeeding techniques and the Baby Friendly Hospital Initiatives (BFHI). Healthcare staffs should

ensure that postpartum mothers are taught and trained in proper breastfeeding techniques before being discharged from the healthcare centre.

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REFERENCES

1. Chouhan Y, Siddharth R, Sakalle S, Mahawar P, Bhaskar P, Gupta D, et al. A cross-sectional study to assess breastfeeding positioning and attachment among mother infant pairs in Indore. Ann Community Health. 2020;8:31-6.
2. Dave VR, Shah VR, Sonaliya KN, Solanki AK. Assessment of Breastfeeding Practices: Findings from Urban Slum Area at Ahmedabad City, India. Education. 2014;30(35):14-93.
3. Nancy S, Sindhuri R, Arunagirinathan A, Dongre AR. Breastfeeding positioning and attachment among postnatal mothers: A mixed methods study in a tertiary care hospital in Puducherry, South India. Indian Journal of Community Medicine. 2022;47(1):120-4.
4. Gupta SA, Sharma M, Ekka A, Verma N. Effect of health education on breastfeeding initiation techniques among postnatal mothers admitted in a tertiary care centre of Raipur city, Chhattisgarh. Int J Community Med Public Health. 2018;5(10):4340-4.
5. Davra K, Chavda P, Pandya C, Dave D, Mehta K. Breastfeeding position and attachment practices among lactating mothers: An urban community-based cross-sectional study from Vadodara city in western India. Clinical Epidemiology and Global Health. 2022;15:101009.
6. Shrivastava PR, Saha I, Nandy S. A study on feeding practice of under 6 months infants attending the Nutrition Clinic of a tertiary care hospital of West Bengal, India. Epidemiology, Biostatistics, and Public Health. 2013;10(4):1.
7. Nalini A. A quality improvement study on breastfeeding initiation rate within 1 hour of life in inborn neonates in a tertiary care centre. International Journal of Contemporary Pediatrics. 2020;7(2):252.
8. Nagendra K, Shetty P, Rudrappa S, Jaganath S, Nair R. Evaluation of breast feeding techniques among postnatal mothers and effectiveness of intervention: Experience in a tertiary care centre. Sri Lanka Journal of Child Health. 2017;46(1):1.
9. Dongre AR, Deshmukh PR, Rawool AP, Garg BS. Where and how breastfeeding promotion initiatives should focus its attention? A study from rural wardha. Indian journal of community medicine. 2010;35(2):226-9.
10. Thakre SB, Thakre SS, Ughade SM, Golawar S, Thakre AD, Kale P. The Breastfeeding Practices: The Positioning and Attachment Initiative Among the Mothers of Rural Nagpur. Journal of Clinical & Diagnostic Research. 2012;6(7):1.
11. Prajapati AC, Chandwani H, Rana B, Sonaliya KN. A community based assessment study of positioning, attachment and suckling during breastfeeding among 0-6 months aged infants in rural area of Gandhinagar district, Gujarat, India. Int J Community Med Public Health. 2016;3(7):1921-6.
12. Parashar M, Singh S, Kishore J, Patavegar BN. Breastfeeding attachment and positioning technique, practices, and knowledge of related issues among mothers in a resettlement colony of Delhi. ICAN: Infant, Child, & Adolescent Nutrition. 2015;7(6):317-22.
13. Nagendra K, Shetty P, Rudrappa S, Jaganath S, Nair R. Evaluation of breast feeding techniques among postnatal mothers and effectiveness of intervention: Experience in a tertiary care centre. Sri Lanka Journal of Child Health. 2017;46(1):1.
14. Aswathaman N, Sajjid M, Kamalarathnam CN, Seeralar AT. Assessment of breastfeeding position and attachment (abpA) in a tertiary care centre in Chennai, India: an observational descriptive cross-sectional study. Int J Contemp Pediatr. 2018;5:2209-16.
15. Degefa N, Tariku B, Bancha T, Amana G, Hajo A, Kusse Y, et al. Breast feeding practice: positioning and attachment during breast feeding among lactating mothers visiting health facility in Areka Town, Southern Ethiopia. International Journal of Pediatrics. 2019;2019(1):8969432.

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