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Retrospective Analysis of Breast-Feeding Rates in Normal Weight Babies and Low Birth Weight Babies

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Abstract

Background: Breastfeeding is recommended as the optimal feeding method for low birth weight and high-risk infants due to its protective and developmental benefits. This study aimed to analyze trends in breastfeeding initiation and duration among normal, low, and very low birth weight infants.

Materials & methods: The study evaluated breastfeeding rates among normal and low birth weight infants using data from 300 participants. Breastfeeding included intake of mother's or donor milk, whether directly, by bottle, or through enteral feeding. Data from singleton births with complete maternal responses were analyzed, with low-birth-weight infants (<2500 g) oversampled for accurate representation, and results were statistically analyzed using SPSS.

Results: Breastfeeding initiation and continuation were highest among normal birth weight infants (72.8% and 36.6%), followed by LBW (54.3%, 28.6%) and VLBW infants (60%, 16.7%). Lower birth weight was associated with reduced breastfeeding rates, highlighting the need for enhanced lactation support in these groups.

Conclusion: The prevalence of lactation initiation among very low birth weight (VLBW) and normal birth weight (NBW) neonates has demonstrated progressive enhancement. However, infants within the low birth weight (LBW) category continue to exhibit suboptimal compliance relative to VLBW neonates. These findings underscore the necessity for targeted public health interventions and policy frameworks aimed at promoting breast milk utilization particularly within the LBW population subset.

Keywords: Breastfeeding, Diabetes Mellitus, Obesity.

Introduction

Globally, improved breastfeeding practices each year have the potential to save over 823,000 children under five. The World Health Organization recommends exclusive breastfeeding for the first six months—meaning no additional food or liquid except prescribed medicines or vitamins—and continued breastfeeding up to two years or beyond.[1] Extensive evidence supports the short- and long-term benefits of breastfeeding for infants, mothers, and society, making it a cornerstone of public health and a key investment in future well-being. Research consistently shows that exclusive breastfeeding reduces maternal risks of breast and ovarian cancers and type II diabetes, while in children, it lowers the incidence of gastrointestinal and respiratory infections and decreases the likelihood of obesity later in life.[2, 3] Additionally, breastfeeding is cost-effective, environmentally safe, and enhances both family and national resources. Despite these advantages, global exclusive breastfeeding rates remain below WHO targets, which aim for at least 50% of infants to be exclusively breastfed at six months by 2025.

Breastfeeding is recommended as the optimal feeding method for low birth weight and high-risk infants due to its protective and developmental benefits.[4, 5] Hence; this study aimed to analyze trends in breastfeeding initiation and duration among normal, low, and very low birth weight infants.

Materials & methods

The present study aimed for assessing breast-feeding rates in normal weight babies and low birth weight babies. For this study, breastfeeding was broadly defined as the intake of breast milk—either from the biological mother or a donor—administered for nutritional purposes. This definition encompassed not only direct breastfeeding but also feeding through bottles or enteral tubes, thereby including infants unable to nurse directly at the breast due to medical or developmental reasons. The study was carried out over three months period. Sample size for the present study included 300. Breastfeeding rates were evaluated for assessing temporal trends by birth weight status. Dataset comprised responses derived from birth certificates and follow-up surveys conducted when infants were 9 months old. Only singleton births with complete breastfeeding data and maternal responses were included in the analysis. Notably, infants with a birth weight below 2500 g were oversampled to ensure adequate representation of low birth weight (LBW) populations—a standard epidemiological approach to achieve reliable national estimates for at-risk groups. All the results were recorded in Microsoft excel sheet and was subjected to statistical analysis using SPSS software.

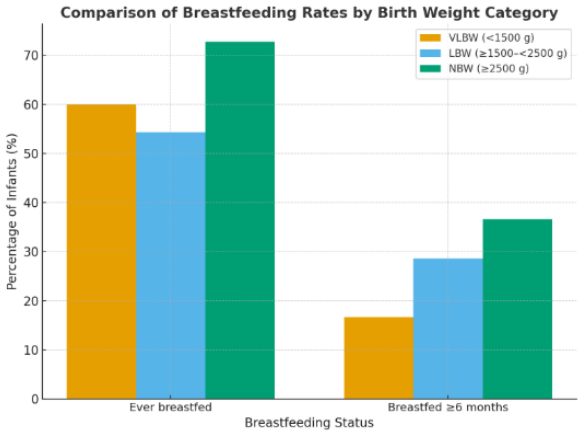
Results

The analysis compared breastfeeding prevalence across birth weight categories. Overall, 69.33% of infants were ever breastfed, with the highest rate among normal birth weight (NBW) infants (72.76%), followed by very low birth weight (VLBW) infants (60%) and low birth weight (LBW) infants (54.29%). The odds ratio indicated that LBW infants were less likely to be breastfed (OR = 0.73) compared to NBW infants. Similarly, breastfeeding beyond six months was observed in 33.67% of all infants, with continuation rates of 36.59% in NBW, 28.57% in LBW, and 16.67% in VLBW infants. These findings suggest that infants with lower birth weights exhibit both lower initiation and continuation rates of breastfeeding, emphasizing the need for targeted lactation support programs in this vulnerable group.

Table 1: Bivariate Analyses of Infants by Birth Weight Status (n=300)

Variables		Total Sample		VLBW Infants (<1500 g)			LBW Infants (≥1500 to <2500 g)			NBW Infants (≥2500 g)		
		%	n	%	n	OR	%	n	OR	%	N	OR
Ever breastfed	Yes	69.33	208	60	18	1.8	54.29	19	0.73	72.76	171	Ref
	No	30.67	92	40	12		45.71	16		27.24	64	
Breastfed ≥6 months	Yes	33.67	101	16.67	5	0.96	28.57	10	0.75	36.59	86	Ref
	No	66.33	199	83.33	25		71.43	25		63.41	149	

Graph 1:



Discussion

Meta-analyses indicate that breastfeeding significantly decreases mortality and morbidity from infectious diseases such as diarrhea and pneumonia—an especially vital benefit in developing countries with high infectious disease prevalence.[6] From the maternal standpoint, numerous studies and systematic reviews demonstrate that exclusive breastfeeding (EBF) for over 12 months lowers the risk of breast and ovarian cancers and provides long-term protection against diabetes mellitus.[7-9] Additionally, evidence from high-income settings shows that early discontinuation or absence of breastfeeding is linked to a higher risk of maternal postpartum depression.[10] Breastfeeding offers significant advantages for low birth weight (LBW; <2500 g) infants, a group particularly susceptible to illness and death, especially in low- and middle-income countries. Human milk can help reduce many of these risks, though initiating and maintaining breastfeeding in this population often presents challenges.[11, 12] Hence; this study aimed to analyze trends in breastfeeding initiation and duration among normal, low, and very low birth weight infants.

The analysis revealed variations in breastfeeding prevalence according to birth weight. Overall, 69.33% of infants were ever breastfed, with the highest rates among normal birth weight (NBW) infants (72.76%), followed by very low birth weight (VLBW) infants (60%) and low birth weight (LBW) infants (54.29%). LBW infants were significantly less likely to be breastfed than NBW infants (OR = 0.73). In a similar study conducted by Campbell et al, authors used U.S. national datasets (ECLS-B 2001; NSCH 2007, 2011/2012) to assess trends in breastfeeding among normal (NBW), low (LBW), and very low birth weight (VLBW) infants. Breastfeeding rates improved across all groups from 2007 to 2011/2012, with VLBW infants showing the highest initiation rates. However, LBW infants had 28% lower odds of ever breastfeeding and 52% lower odds of continuing for ≥6 months compared to NBW infants. Among Black infants, 26.2% of VLBW versus 14.9% of LBW infants were breastfed for ≥6 months. Overall, VLBW and NBW infants approached the Healthy People 2020 goal of 81.9% ever breastfed, highlighting

the need for targeted interventions to support breastfeeding among LBW infants.[13]

In the present study, continued breastfeeding beyond six months was recorded in 33.67% of infants overall, with rates of 36.59% in NBW, 28.57% in LBW, and 16.67% in VLBW groups. These results highlight a decline in both initiation and duration of breastfeeding with decreasing birth weight, underlining the importance of focused lactation support for at-risk infants. Sura B et al assessed factors affecting breastfeeding initiation and the impact of Kangaroo Mother Care (KMC) on low and very low birth weight infants. Among 100 neonates (50 KMC, 50 controls), cesarean delivery, respiratory distress, poor milk secretion, and seizures were major barriers to breastfeeding. Exclusive breastfeeding was significantly higher with KMC (90% vs. 72%), with lower morbidity and better growth (mean weight 5.2 kg vs. 4.7 kg) and developmental outcomes in communication, motor, and social domains at six months.[14] Cooper et al. compared growth outcomes in very low birth weight (VLBW) infants fed specialized formula with those fed expressed breast milk. Formula-fed infants demonstrated faster weight gain once they reached a caloric intake of 100 kcal/kg/day, along with greater increases in head circumference and skinfold thickness. In a subsequent study, the same authors reported significantly higher weight and length gains in infants receiving preterm formula compared to those fed their mother's milk. Other studies also found better weight gain in preterm infants fed with preterm formula; however, those fed with preterm breast milk achieved growth rates closer to intrauterine norms, while formula-fed infants exceeded expected intrauterine growth patterns.[15- 18] Since last couple of decades, breastfeeding rates among all infants have shown a steady rise, a trend also observed in very low birth weight (VLBW) and low birth weight (LBW) groups. Despite this improvement, disparities persist between VLBW, LBW, and normal birth weight (NBW) infants. Findings from nationally representative data highlight the need for targeted policies and interventions to promote breastfeeding among LBW infants across all racial and ethnic populations, aiming to align their rates with those of VLBW infants and move closer to the Healthy People 2020 breastfeeding targets. Further studies are warranted to identify factors influencing breastfeeding practices in LBW and VLBW infants, particularly regarding differences associated with neonatal intensive care unit (NICU) admission.[19, 20]

Conclusion

The prevalence of lactation initiation among very low birth weight (VLBW) and normal birth weight (NBW) neonates has demonstrated progressive enhancement. However, infants within the low birth weight (LBW) category continue to exhibit suboptimal compliance relative to VLBW neonates. These findings underscore the necessity for targeted public health interventions and policy frameworks aimed at promoting breast milk utilization particularly within the LBW population subset.

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