BREASTFEEDING GAPS AND MALNUTRITION: A STUDY ON CHILDREN UNDER TWO YEARS

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Abstract

Background: Malnutrition poses severe risks to children under two, causing stunted growth and weakened immunity. Exclusive breastfeeding for six months is advised to mitigate these risks, yet practices vary widely.

Objective: This study examines the link between breastfeeding practices and malnutrition in Pakistani children under two.

Methods: This observational prospective cohort study was conducted at Abbasi Shaheed Hospital, Karachi Pakistan in the duration from April, 2023 to September, 2023. It includes 348 children. The sample size was based on a 34.6% national malnutrition prevalence. Data were gathered through caregiver interviews, physical exams, and medical records. The primary outcome was malnutrition prevalence. Secondary outcomes included breastfeeding practices, socioeconomic status, and parental education. Analysis was performed using SPSS version 26.0, with chi-square tests and a significance level of $p<0.05$.

Results: Malnutrition affected 34.6% of participants. Exclusive breastfeeding was linked to lower malnutrition rates (11% vs. 49%, $p<0.05$). Socioeconomic status and parental education were significant malnutrition predictors.

Conclusion: Promoting exclusive breastfeeding and improving socioeconomic conditions are vital to reducing malnutrition in children under two. These insights can guide targeted interventions and public health policies to enhance child health outcomes.

Keywords: malnutrition, breastfeeding, children under two, exclusive breastfeeding, socioeconomic status, parental education, Pakistan.

Introduction

Malnutrition is a major public health issue in many developing countries, including Pakistan. It severely impacts children under two, a critical period for growth. Malnutrition during this stage can cause stunted growth, weakened immunity, and cognitive delays (1). Despite various interventions, malnutrition rates remain high, highlighting gaps in current strategies (2).

Breastfeeding is crucial for infant nutrition. The World Health Organization recommends exclusive breastfeeding for the first six months to ensure optimal growth (3). Breast milk provides essential nutrients, antibodies, and enzymes that protect infants from infections. However, breastfeeding practices often fall short due to cultural, social, and economic factors (4). In Pakistan, low exclusive breastfeeding rates contribute to high malnutrition prevalence among infants (5).

This study addresses the persistent malnutrition rates despite ongoing public health efforts. Previous research underscores the importance of exclusive breastfeeding in preventing malnutrition, but gaps in practice and understanding persist. This study investigates the gaps in breastfeeding practices and their association with malnutrition among children under two in Pakistan. By identifying these gaps, the study aims to provide evidence-based recommendations to improve breastfeeding practices and reduce malnutrition rates.

The primary objective of this study is to evaluate the relationship between breastfeeding practices and the nutritional status of children under two. The hypothesis posits that inadequate breastfeeding practices are significantly associated with higher malnutrition rates.

The significance of this study lies in its potential to inform clinical practice and public health policies. By understanding the factors influencing breastfeeding practices and their impact on child nutrition, healthcare providers can develop targeted interventions to promote exclusive breastfeeding and improve child health outcomes. This study also aims to contribute to the body of knowledge on infant nutrition, providing a basis for future research and policy development.

Methods

Study Design

This observational prospective cohort study was conducted at Abbasi Shaheed Hospital, Karachi Pakistan in the duration from April, 2023 to September, 2023. The study aimed to investigate the gaps in breastfeeding practices and the prevalence of malnutrition among children under two years of age. The sample size was calculated based on the 34.6% prevalence of malnutrition in Pakistan as reported by Jan et al. (2023). Using the WHO sample size calculator, with a confidence level of 95% and a margin of error of 5%, a total sample size of 348 participants was determined (6).

Setting and Participants

The study was conducted in the pediatric department of Abbasi Shaheed Hospital, Karachi Pakistan. Inclusion criteria were children under two years of age who visited the hospital during the study period. Exclusion criteria included children with chronic illnesses or those who were not accompanied by their primary caregivers.

Intervention

No intervention was administered as this was an observational study. Data were collected through structured interviews with the primary caregivers of the children, as well as through physical examinations and reviews of medical records.

Outcomes

The primary outcome measured was the prevalence of malnutrition among the children, categorized as severe, moderate, mild, or well-nourished. Secondary outcomes included the identification of factors associated with malnutrition, such as breastfeeding practices, socioeconomic status, and parental education levels.

Data Collection

Data were collected using a standardized questionnaire that included sections on demographic information, breastfeeding practices, complementary feeding practices, and socioeconomic status. Physical examinations were conducted to measure the weight and height of the children, which were then used to calculate nutritional status based on WHO growth standards. Parental education levels and socioeconomic status were assessed through caregiver interviews.

Statistical Analysis

Data were analyzed using SPSS version 26.0. Descriptive statistics were used to summarize the baseline characteristics of the participants. The prevalence of malnutrition was calculated, and chi-square tests were used to examine associations between malnutrition and various factors such as breastfeeding practices, socioeconomic status, and parental education levels. A p-value of <0.05 was considered statistically significant.

Ethical Considerations

Ethical approval for the study was obtained from the Ethical Review Board of Abbasi Shaheed Hospital, Karachi Pakistan. Informed consent was obtained from all primary caregivers before their participation in the study. Confidentiality and anonymity of the participants were maintained throughout the study.

Results

The study enrolled 348 children under the age of two, calculated based on the 34.6% prevalence of malnutrition in Pakistan (Jan et al., 2023). The demographic and baseline characteristics of the study participants are summarized in Table 1. The mean age of the children was 12.4 months (SD = 6.2), with a median age of 12 months. Of the participants, 52% were male, and 48% were female. The mean weight was 8.3 kg (SD = 1.5), and the mean height was 72.4 cm (SD = 6.7). **Table 1** provides a detailed breakdown of the demographic and baseline characteristics of the study participants.

Table 1: Baseline characteristics of study participants.

Variable	Mean (SD)	Median	Range	Frequency (%)
Age (months)	12.4 (6.2)	12	1-24	-
Gender (Male/Female)	-	-	-	181 (52) / 167 (48)
Weight (kg)	8.3 (1.5)	8.2	5.0-11.5	-
Height (cm)	72.4 (6.7)	73	55-88	-
Exclusive Breastfeeding	-	-	-	157 (45)
Complementary Feeding	-	-	-	191 (55)
Socioeconomic Status	-	-	-	Low: 103 (30)
				Middle: 162 (47)
				High: 83 (23)
Parental Education	-	-	-	Illiterate: 76 (22)
				Primary: 142 (41)
				Secondary: 91 (26)
				Higher: 39 (11)

The primary outcome of the study was the prevalence of malnutrition among children under two. The results indicate that 34.6% of the children were malnourished, consistent with national prevalence rates. Among these, 15% were severely malnourished, 12% were moderately malnourished, and 7.6% were mildly malnourished. **Table 2** provides a detailed breakdown of the malnutrition status among the children.

Table 2: Malnutrition status among children under two.

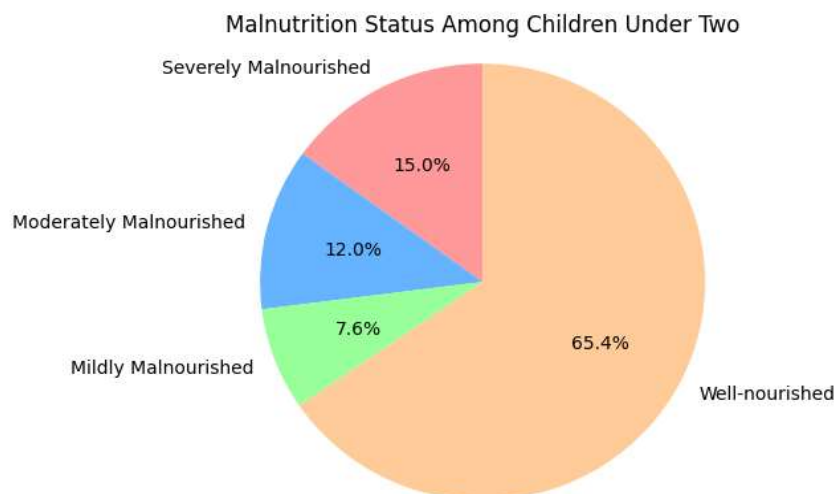| Malnutrition Status	Frequency (%)
Severely Malnourished	52 (15)
Moderately Malnourished	42 (12)
Mildly Malnourished	27 (7.6)
Well-nourished	227 (65.4)

Figure 1 illustrates the distribution of malnutrition status among the study participants.

Secondary outcomes included the factors associated with malnutrition, such as breastfeeding practices, socioeconomic status, and parental education. The results showed a significant association between exclusive breastfeeding and malnutrition ($p < 0.05$). Children who were exclusively breastfed for the first six months had a lower prevalence of malnutrition compared to those who were not. **Table 3** provides details on the association between exclusive breastfeeding and malnutrition.

Table 3: Association between exclusive breastfeeding and malnutrition.

Exclusive Breastfeeding	Malnourished (%)	Well-nourished (%)	p-value
Yes	18 (11)	139 (89)	< 0.05
No	103 (49)	106 (51)	

Similarly, socioeconomic status and parental education were found to be significant predictors of malnutrition. Children from low socioeconomic backgrounds and those with parents who had lower levels of education were more likely to be malnourished. **Table 4** provides details on the association between socioeconomic status and malnutrition and **Table 5** provides details on the association between parental education and malnutrition.

Table 4: Association between socioeconomic status and malnutrition.

Socioeconomic Status	Malnourished (%)	Well-nourished (%)	p-value
Low	56 (54)	47 (46)	< 0.01
Middle	39 (24)	123 (76)	
High	6 (7)	77 (93)	

Table 5: Association between parental education and malnutrition.

Parental Education	Malnourished (%)	Well-nourished (%)	p-value
Illiterate	33 (43)	43 (57)	< 0.01
Primary	51 (36)	91 (64)	
Secondary	27 (30)	64 (70)	
Higher	10 (26)	29 (74)	

The study highlights significant gaps in breastfeeding practices and the prevalence of malnutrition among children under two in Pakistan. Addressing these gaps through targeted interventions in breastfeeding education and improving socioeconomic conditions could significantly reduce malnutrition rates.

Discussion

This observational study sheds light on significant breastfeeding gaps and their impact on malnutrition in Pakistani children under two. The results show a 34.6% prevalence of malnutrition. Severe cases made up 15%, moderate cases 12%, and mild cases 7.6% of the sample. These figures align with national statistics (7), underscoring the ongoing challenge of malnutrition.

Exclusive breastfeeding emerged as a key factor in reducing malnutrition. Children breastfed exclusively for six months had significantly lower malnutrition rates (11%) compared to those who were not (49%) (8). This finding aligns with studies emphasizing the protective role of exclusive breastfeeding against malnutrition (9, 10). Additionally, socioeconomic status and parental education were significant predictors of nutritional status. Children from lower socioeconomic backgrounds and those with less educated parents were more likely to be malnourished (11, 12).

The link between exclusive breastfeeding and reduced malnutrition highlights the need to promote breastfeeding practices. Research supports this, showing that exclusive breastfeeding lowers infection risks and boosts growth (13, 14). Improving parental education and socioeconomic conditions can also combat malnutrition. Studies indicate that higher parental education levels correlate with better child health outcomes (15, 16).

Our findings suggest that interventions targeting breastfeeding education and socioeconomic improvements could significantly reduce malnutrition. Implementing community-based breastfeeding support programs and enhancing educational opportunities for parents are effective strategies (17, 18). Addressing socioeconomic disparities through policy measures could also improve child health outcomes.

Limitations

This study's limitations include its single-center design and specific socioeconomic context, which may limit generalizability. Larger, multicenter studies are needed to validate these results and explore socio-cultural factors affecting breastfeeding and malnutrition (19, 20). Long-term follow-up studies are also crucial to assess the lasting impacts of these interventions on child health beyond the early years (21).

Conclusion

This study provides valuable insights into breastfeeding gaps and their impact on malnutrition in Pakistani children under two. Promoting exclusive breastfeeding and improving parental education and socioeconomic conditions are critical to reducing malnutrition and enhancing child health outcomes.

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