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RESEARCH ARTICLE
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PREVALENCE OF MALNUTRITION IN CHILDREN UNDER 2 YEARS AND ITS ASSOCIATION WITH SUBOPTIMAL BREASTFEEDING PRACTICES

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ABSTRACT

Introduction: Malnutrition in children under two years remains a significant public health issue in developing countries, including Pakistan. Breastfeeding practices play a pivotal role in determining a child's nutritional status during this critical growth period.

Objective: To assess the prevalence of malnutrition among children under two years of age and examine its association with sub-optimal breastfeeding practices in a hospital-based population in Pakistan.

Materials and Method: A descriptive cross-sectional study was conducted at multiple center including Department of Paediatrics, Shahida Islam Teaching Hospital Lodhran, Pakistan and Rehman Medical Institute Hayatabad Peshawar, Pakistan in the duration from January 2024 to June 2024. Data were collected from 250 children using structured questionnaires and anthropometric measurements. WHO growth standards were used to assess nutritional status, and SPSS version 26 was used for statistical analysis.

Results: Stunting (44.8%), underweight (38%), and wasting (29.2%) were prevalent. Suboptimal breastfeeding practices, including delayed initiation and non-exclusive breastfeeding, showed a significant association ($p<0.01$) with all forms of malnutrition.

Keywords: Malnutrition, Breastfeeding, Children under two, Stunting, Exclusive breastfeeding, Pakistan.

INTRODUCTION

Persistent malnutrition among children under two is still a serious global health issue, even though the number of deaths from malnutrition among this age group has been ruthlessly cut in half since 1990. This is particularly true in low- and middle-income nations like Pakistan, where acute and chronic undernutrition are significant causes of child morbidity and mortality. Breastfeeding is a

critical factor in the nutritional outcomes of this at-risk age group. Nevertheless, changes in breastfeeding practices that are suboptimal have persisted, and this has exacerbated the presence of malnutrition. Undernutrition is widespread in children under three years in Pakistan, and studies found that there was a strong association between delayed breastfeeding and high stunting, wasting, and underweight rates (1). Beyond providing the nutritional requirements, both optimal breastfeeding practices are important for infant healthy growth and development, especially in early life.

Proper feeding practices, early use of infant formulas, and late complementary feeding are increasingly linked across the Eastern Mediterranean region to the burden of malnutrition on children. Despite global awareness campaigns, substantial gaps persist in exclusive breastfeeding and timely complementary feeding, resulting in children's health disadvantages (2). Similarly, this problem is echoed in other places like Indonesia, where breastfeeding practice plays an important role in preventing undernutrition prevalence among children under two years. It was observed in a study to assess the ecological relationship that poor breastfeeding behaviors are major factors of undernutrition, characterized by short duration and early cessation (3), indicating the necessity of targeted interventions. Like in Lebanon, socioeconomic problems worsened suboptimal feeding practices in children under five. Economic instability, food insecurity, and maternal educational levels also show a strong association with poor breastfeeding practices, which lead directly to other forms of malnutrition in younger children (4).

Malnutrition in children under two years old is largely caused by poor breastfeeding, regardless of the cause cultural misconceptions, maternal employment, or ignorance, as national surveys and local studies demonstrate (5). These findings stress the need for widespread breastfeeding education programs covering rural and urban populations. Moreover, early cessation of breastfeeding has also been associated with poor cognitive and physical development. Research in Brazil found that a short breastfeeding period was associated with undernutrition, resulting in a detrimental effect on motor and cognitive skills in children (6). Like in Ethiopia, studies have shown that child feeding practices such as inadequate breastfeeding, particularly in regions where there is low access to health care or poverty, are important contributors to child wasting and stunting (7). In addition to misinformation, systemic problems of maternal workload and lack of institutional support for breastfeeding both prevent and delay breastfeeding (8).

Suboptimal breastfeeding, which has had minimal improvement in the burden globally over decades, affects children's nutritional status and growth. Despite awareness initiatives, global data collected from 1990 to 2021 revealed that millions of children are at risk of early weaning, late initiation, or not exclusively breastfed during the first six months of life (9). The effects of these practices are driven by social norms, healthcare delivery systems, and maternal education, which account for a great deal of nutritional deficiencies in under two populations. Specifically, this was the case in Ethiopia, where malnutrition prevalent in 6–23-month-old children was positively correlated to poor feeding behavior and poor maternal literacy coupled with poor access to health care services (10). Similarly, in affluent countries, for example, the United Arab Emirates, even with sufficient resources, cultural practices and early exposure to infant formula have led to standard suboptimal feeding practices and nutrient deficiency among infants and toddlers (11).

The maternal psychosocial factors are also important. Such an analysis of Mothers exposed to intimate partner violence in Malawi, Tanzania, and Zambia found that Mothers were more likely to adopt poor breastfeeding habits (12). These findings emphasize the necessity of providing holistic maternity care that will lead to optimal infant nutrition. In areas such as North Wollo, Ethiopia, the incoming combination of food insecurity and suboptimal feeding practices forms a high-risk environment for impaired growth in children. In such a context, even if food is available, inappropriate weaning and feeding behaviors detract from child health outcomes (13). One illustrative example of this is the routine use of bottle feeding in the urban Ethiopian centers, where bottle feeding was observed to occur in most infants under 6 months of age, a critical period for exclusive breastfeeding (14). Finally, a study in South Africa's informal settlements again showed a strong association between stunting and inappropriate feeding practices, including delayed breastfeeding

initiation and early weaning, indicating that even socioeconomically determined nutrition of children is very determinant (15).

Overall, the evidence across geographical and socio-economic settings is consistent: suboptimal breastfeeding practice is one major preventable factor contributing to malnutrition of children under two years of age. The failure to support and sustain optimal breastfeeding is due to socio-cultural, economic, and institutional factors and results in nutritional deficits, which have long-term consequences on health and development. These findings are strong advocacy for the adoption of evidence-based breastfeeding promotion strategies, maternal support programs, and public health policies that promote the nutritional well-being of infants between birth and two years.

Objective: To determine the prevalence of malnutrition in children less than two years and to look into its possible relation with suboptimal breastfeeding practices in an affected hospital-based population in Pakistan.

MATERIALS AND METHODS

Study Design: Cross-sectional study.

Setting: The study was conducted at multiple center including Department of Paediatrics, Shahida Islam Teaching Hospital Lodhran, Pakistan and Rehman Medical Institute Hayatabad Peshawar, Pakistan.

Duration: The study was carried out over a six-month period, from January 2024 to June 2024.

Inclusion Criteria:

This included children 0–24 months old seen in the outpatient or inpatient pediatric units during the study period. Only those accompanying their biological mothers who could provide breastfeeding history and consent were eligible.

Exclusion Criteria

Children with congenital anomalies, chronic illnesses such as cardiac or renal disorder, or genetic syndromes affecting growth were excluded. Finally, mothers who were unwilling or unable to supply the necessary feeding history were excluded.

Methods

A standardised, pre-tested questionnaire was utilised to collect data from mothers of children under two in this study. Demographic variables, such as breastfeeding initiation, exclusivity, and breastfeeding duration, were collected in the questionnaire, and complementary feeding was gathered. Body anthropometric measurements were measured using standardized techniques and equipment, specifically weight, length/height, and mid-upper arm circumference (MUAC). According to WHO growth standards, weight and height were used to determine underweight, stunting, and wasting. According to WHO guidelines, suboptimal breastfeeding was considered declined initiation (after one hour of the birth), nonexclusive breastfeeding during the first 6 months, or early cessation before two years. Data were entered into and analyzed with SPSS v. 26. Frequencies and percentages were obtained through descriptive statistics. Chi-square tests were used to check how much breastfeeding practices were associated with malnutrition indicators, with a p-value ≤ 0.05 being considered statistically significant. Informed consent was obtained from all participants, and ethical approval was obtained from the hospital's ethical review board.

RESULTS

The study included a total of 250 children less than two years of age. Among them, 48% were female and 52% were male. The children were aged 13.2 ± 5.6 months on average. Most of the mothers (67%) belonged to socio-economic backgrounds, 60% being education with a primary level of not more than that and still 60% indicating at least primary school education. Regarding feeding, only 38

% of the mothers stated that they had begun breastfeeding within the first hour of delivery. Exclusive breastfeeding for the first six months was practiced by 42%, while 58% did not give any other foods or liquids. Only 36% of the children continued to be breastfed beyond 12 months.

Table 1: Prevalence of Malnutrition among Children Under Two Years

Nutritional Indicator	Frequency (n=250)	Percentage (%)
Underweight	95	38%
Stunting	112	44.8%
Wasting	73	29.2%

Stunting was the most common form of malnutrition, affecting almost 45% of children, as shown by the table above. It also found they were significantly underweight and wasting, suggesting that the child is in poor nutritional status in any number of indicators.

Table 2: Association between Exclusive Breastfeeding and Nutritional Status

Exclusive Breastfeeding	Underweight (%)	Stunting (%)	Wasting (%)
Practiced (n=105)	26 (24.8%)	30 (28.6%)	18 (17.1%)
Not Practiced (n=145)	69 (47.6%)	82 (56.5%)	55 (37.9%)
p-value	<0.01	<0.01	<0.01

This equated to significantly higher rates of underweight, stunting, and wasting among children who were not exclusively breastfed during the first six months. All three indices were found statistically significant ($p<0.01$), indicating protection with exclusive breastfeeding.

Table 3: Breastfeeding Initiation Time and Nutritional Outcomes

Initiation Time	Underweight (%)	Stunting (%)	Wasting (%)
Within 1 hour (n=95)	20 (21.1%)	22 (23.2%)	13 (13.7%)
After 1 hour (n=155)	75 (48.4%)	90 (58.1%)	60 (38.7%)
p-value	<0.01	<0.01	<0.01

Among children who became malnourished, early initiation of breastfeeding (within the first hour of being born) was associated with lower rates of malnutrition. There was a significant difference between children who were delayed in initiation and those who could not initiate and their higher prevalence rates in all categories of undernutrition. These findings indicate that timely initiation of breastfeeding is essential to prevent early childhood malnutrition. Inclusive breastfeeding was strongly associated with higher infection than malnutrition rates in children under two years. However, overall suboptimal breastfeeding practices, particularly nonexclusive breastfeeding, and delayed initiation, were associated with higher malnutrition rates than infection rates.

DISCUSSION

Results of this study showed that malnutrition in children under 2 years is highly prevalent, with a significant association between suboptimal breastfeeding practices and indicators of undernutrition such as being underweight, stunting, and wasting. These results are in line with national and international evidence that confirms that breastfeeding is critical for child health and for preventing malnutrition in early life. This study found that a large amount of the children in this study were either underweight, stunted, or wasted, with stunting being the most common type of malnutrition. The result is similar to that of Syeda et al. (1), who observed an enormity of stunting burden among Pakistani children aged 0–3 years and explained that breastfeeding duration affected nutritional outcomes directly.

Such patterns have also been observed in regional studies across the Eastern Mediterranean, where poor breastfeeding practices have been found to enhance childhood malnutrition despite increased efforts in awareness (2). We know that early breastfeeding practices are associated with child growth.

According to Perdani et al. (3), in Indonesia, infants who were breastfed for less time or who had their complementary feeding started before being recommended had significantly elevated odds of being undernourished. This echoes our findings whereby, almost doubling the rates of stunting and wasting when compared with those children who were not exclusively breastfed for six months. The study also further validates the significant importance of exclusive breastfeeding during the first six months of life, as per the definition of the World Health Organization.

The study conducted by Hoteit et al. in Lebanon revealed that political instability, socioeconomic factors, and maternal education levels determined both child-feeding practices and children's dietary health. Study findings indicate high malnutrition rates among children whose mothers have restricted education since they support previous observations. Global health research shows that Pakistani child malnutrition deepens because of improper breastfeeding practices, which result from cultural traditions, maternal untrained behavior, and inadequate medical services, according to Ashraf et al. (5). According to Rocha et al. (6), breastfeeding plays dual roles in shaping physical development along with mental advancement among babies. Research from Brazil demonstrates that shorter breastfeeding terms lead to delayed development, confirming our study's main idea about how early childhood malnutrition has lasting effects on development. Wasting within infants younger than six months in Ethiopia was strongly linked to poor breastfeeding practices, according to Getachew et al. (7).

We also discovered that delayed breastfeeding initiation was a considerable cause of poor nutritional outcomes. The results of Chanie et al. (8) also support this finding, as women who did not breastfeed early were more likely to adopt other suboptimal practices like mixed feeding or premature introduction of solids. Despite decades of international advocacy and programming, Jiang et al. (9) reported minimal progress in increasing breastfeeding rates worldwide. There is also support from the data on findings by Ararsa et al. (10) for poor maternal knowledge, poor access to healthcare, and the lack of institutional support as the common barriers to optimal feeding in South-East Ethiopia. Cheikh Ismail et al. (11) also found that even in the resource-rich countries of the UAE, there is still room for improvement of formula feeding practices because of cultural preference for formula milk and misconceptions about the amount of breast milk needed. These global trends indicate that breastfeeding challenges are not only poverty or underdevelopment-related.

Moreover, breastfeeding behaviors are affected by psychosocial stressors. Evaluated by Walters et al. (12), maternal exposure to intimate partner violence has a negative impact on breastfeeding practices infecting children with indirect malnutrition. The study did not assess maternal psychosocial health directly, but it is reasonable to assume such factors may impact maternal well-being, especially in the context of a limited maternal support system. Anato et al. (13) illustrate how feeding compounds chronic undernutrition in food-insecure areas such as North Wollo, Ethiopia, when food availability is limited. This emphasizes that the interventions need to advocate breastfeeding, food security, and maternal education. Similarly, Birhan et al. (14) found a high incidence of bottle feeding by urban mothers, even for infants below six months of age, which is directly contrary to exclusive breastfeeding efforts and further poses risks of infection and malnutrition.

This is also in line with the findings of Kubeka and Modjadji (15) in South Africa, who found that children from informal settlements are at high risk of stunting because of poor feeding practices and low levels of maternal education. These cross-regional findings underscore the universality of the breastfeeding-malnutrition link and the need for urgent global context-specific interventions. Finally, our study shows that delayed initiation and exclusive breastfeeding, along with suboptimal breastfeeding practices, are all related to children under two years being malnourished. This relationship is further supported by evidence from studies from various countries. It underscores how difficult it may be to understand how a variety of different types of factors influence maternal feeding behaviors. Early education, community-based support programs, and healthcare provider engagement should all be the focus of effective interventions to promote optimal breastfeeding. Additionally, policy-level strategies should respond to broader determinants like poverty, food insecurity, and maternal well-being to achieve more comprehensive improvements in child nutrition.

CONCLUSION

The high prevalence of malnutrition in children aged less than two years, particularly stunting, underweight, and wasting, is strongly associated with suboptimal breastfeeding, which was this study's theme. There are clear findings that delayed initiation of breastfeeding, lack of exclusive breastfeeding, and early cessation are the major contributors to poor nutritional status. This confirms what is known globally about protective breastfeeding in the first year of childhood. In addition to socioeconomic factors, maternal education and cultural practices shape feeding behaviors, contributing to child malnutrition. It requires a comprehensive approach that includes public health education, community support, and strengthening of the healthcare system to help and support optimal breastfeeding practices. The key is for policymakers and health professionals to come together and implement targeted interventions that support mothers in the earliest stages of a child's life after birth. Promoting breastfeeding is a highly cost-effective strategy to combat early child malnutrition and improve child health and development.

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