

MALNUTRITION IN UNDER FIVE CHILDREN IN TURBHE STORES URBAN SLUMS IN NAVI MUMBAI

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ABSTRACT

Background: Malnutrition is a problem not only in rural area but also among the urban poor. Also, the urban poor are a neglected segment of population in terms of basic services and amenities. Nutrition in children is affected by various determinants including mother's level of knowledge, attitudes and practices. Hence, this study was conducted in an urban slum setting to understand the extent and determinants of malnutrition in children below five years of age.

Aims & Objectives: The study objectives were to understand the knowledge, attitude and practices of mothers with respect to nutrition of their under five children and to measure the extent of malnutrition in the sample population of under five children.

Materials and Methods: This was a cross sectional study and data was collected on a sample of 300 children under five years and their mothers selected through cluster sampling technique in Turbhe stores urban slum community of Navi Mumbai. Using a semi-structured interview schedule, Knowledge, Attitude and Practice (KAP) on nutrition among mothers of these children were assessed and anthropometric measurements were taken. The study used the World Health Organization (WHO) guidelines for measuring malnutrition. Data was entered and analyzed using SPSS, version 20. z score analysis for malnutrition assessment was done using the appropriate WHO software.

Results: The knowledge levels of mothers regarding breast-feeding were mixed. Majority (88%) of the mothers were aware that only breast-feeding is required post-delivery, and duration of breast-feeding could be more than six months. there was a gap in knowledge about breast-feeding practice during infant illness. Only 9% of mothers had the correct knowledge to increase breast feeding if the infant was ill and 20% felt breast feeding should be decreased during illness of child. Mothers had very poor knowledge about nutritious food. The attitude score was created using the Likert scale with a minimum score of 16 and maximum score of 64. The mean attitude score was 54.29 with a standard deviation of 5.24. In terms of breast-feeding practices, 74 (24.6%) mothers did not initiate breast-feeding within one hour of birth, and only 21 (7%) mothers increased breast feed frequency during illness of child.

Conclusion: The study found gaps in knowledge about breast-feeding practices among mothers and very poor practices related to adequate nutrition for children. Stunting was seen in more than 50 % of children. However, the mothers had a very positive overall attitude about improving nutrition of their children and were willing to learn about it. This provides an opportunity for a targeted intervention among the mothers of these children in the community.

Key Words: Malnutrition; Urban Slum; India

Introduction

Malnutrition continues to be an important risk factor for child deaths in developing countries, including India. Research shows that mortality rates among children with severely acute malnutrition is 5-20 times higher than it is among well-nourished children.^[1] India has the highest proportion of undernourished children in the world, along with Bangladesh, Ethiopia, and Nepal.^[2] Every year 2.5 million children die in India, accounting for one in five deaths in the world.^[2] UNICEF, India reports that 50% of all child deaths are due to malnutrition.^[3] In the case of Maharashtra, 45,000 children die of malnutrition every year as mentioned in a report by Pune-based organization, SATHI-Cehat.^[4] According to the National Family Health Survey-3 (NFHS-3), in Maharashtra almost half of the children under five years of age (48%) have stunted growth, meaning these children are too short for their age, which is an indicator of chronic malnutrition and 43% are underweight. The proportion of severely

undernourished children is also notable: 24% are severely stunted and 16% are severely underweight.^[5] The poor state of nutrition is not restricted to rural areas of Maharashtra. The CNSM report (2012) commissioned by the Govt. of Maharashtra found that in urban areas, a significant proportion of children (0-23 months) are stunted (20.7%), wasted (14.2%) and underweight (18.5%).^[6]

Nutritional problems such as protein energy malnutrition (PEM), anaemia and vitamin A deficiency continue to plague a large proportion of Indian children. The diet and nutritional status of urban slum children in India is far from being satisfactory. The nutritional status of slum children is worst amongst all urban groups and is even poorer than the rural average. Urban migration has not rid these children of poverty and under nutrition. Another distressing feature is the lack of any significant improvement over the years in this population. Most common causes of malnutrition include faulty infant

feeding practices, impaired utilization of nutrients due to infections and parasites, inadequate food and health security, poor environmental conditions and lack of proper child care practices. High prevalence of malnutrition among young children is also due to lack of awareness and knowledge regarding their food requirements and absence of a responsible adult care giver.^[7]

India's urban population has grown from 62 million in 1951 to 377 million in 2011.^[8] Maharashtra is one of the leading states in urbanization and has over 50% of its population in urban areas.^[9] However, urbanization leads to migration and overcrowding thereby pressurizing the civic amenities. As a result there is a proliferation of slums in urban areas wherein the living and environmental conditions create a detrimental effect on the inhabitants especially children residing there.

Slums usually house people with deficiencies in urban basic services, such as safe home, water supply, sewerage, safe energy, waste disposal, etc. The slum population more than doubled from 43 million in 2001 to 93 million in 2011 and is projected to grow at 5% per year adding two million every year. In Maharashtra, the projected growth of slum population is 13.3% (2011-17)^[9] of which the main contributor is believed to be the Mumbai Metropolitan Region Development Area (MMRDA), which includes the area of Navi Mumbai.

In Mumbai, over 50% of population lives in slums, and in Navi Mumbai the slum population is 20%. In Mumbai, 36% of slum children are malnourished, posing a significant risk to their health and development. Malnutrition rates in urban India are often higher than in rural India and are, in fact, intricately linked with rapid urbanization, poverty, and illiteracy, which requires the urgent attention of policy makers and development practitioners.^[10] A study done by IIPS reported that the proportion of stunted children in Mumbai was 45%.^[11] In general, slum children have poorer nutritional status than non-slum children. The percentage of underweight children under five years of age was found to be 36% in slum population and 26% in non-slum population.^[12]

While the scale and magnitude of this problem is documented for Mumbai^[5,10,11], there is very little documented evidence from the urban slums of Navi Mumbai. Since the slum population of Navi Mumbai is clustered in Turbhe Stores area, this study was conducted in Turbhe stores. The population of this area

is approximately 62,000^[13] (UHP data, 2012), and is a heterogeneous mix of people who have migrated from various regions of the country.

Malnutrition causes long-term damage to a child physical and mental development. Hence, early nutrition is very important as it defines the mental and physical growth of children. More than half of the deaths due to malnutrition can be prevented if the children are well nourished. Nutrition in children is affected by various determinants including mother's level of knowledge, attitudes and practices. Also, the urban poor are a neglected segment of population in terms of basic services and amenities. Hence, this study was conducted to gather evidence on this issue in an urban slum setting. The study aims to find determinants of malnutrition and assess the level of malnutrition in children below five years of age in Turbhe stores urban slum.

OBJECTIVES

1. To study the knowledge, attitude and practices of mothers with respect to nutrition of their children below five years of age.
2. To measure the extent of malnutrition in the sample population of under five children.
3. To provide recommendations for intervention based on the above findings.

Materials and Methods

This was a cross sectional study and data was collected during the period October 2013- January 2014. A sample of 300 children under five years and their mothers were selected through cluster sampling technique. Turbhe stores slums neighborhood was divided into six geographical clusters based on lanes running through the slum. The houses on each lane constituted a cluster. In each cluster, households having children below five years of age were identified. Primary data collection was done with the help of community workers from the Turbhe stores community. The community workers underwent a detailed training session on data collection method. The concept of ownership of data by the community was very important, as the findings of this data would be used to train the community workers for intervention. The Knowledge, Attitude and Practice (KAP) on nutrition among mothers of the children under five years were assessed through a semi-structured interview schedule. Anthropometric measurements such as weight, height and mid-arm circumference were taken. The study used the WHO guidelines for measuring malnutrition.

Informed consent was taken from all participants in this study. No blood or biological sample was collected in this study. Data was entered and analyzed in SPSS version 20. z score analysis for malnutrition assessment was done using the WHO software for measuring z score.^[14]

Results

There were 152 male and 148 female children in the sample with a mean age of 24 months. The mothers' ages ranged from 17-36 years, with a mean age of 24.74 years. The mean age of marriage for the mothers was 18 years, and mean age of first delivery was 20 years. 61 (20.3%) mothers were illiterate. 187 (62.3%) mothers had two children or less, while 113 (37.7%) had three or more children. The time interval between children was less than two years in 82 (27.3%) mothers. 145 (48.3%) children had a birth weight of less than 2.5 kg i.e. low birth weight.

The knowledge levels of mothers regarding breast-feeding were mixed. Majority (88%) of the mothers were aware that only breast-feeding is required post-delivery, and duration of breast-feeding could be more than six months. This may be due to the fact that most of these mothers had institutional deliveries and hence were sensitized about the positive effects of breast milk on child. However, there was a gap in knowledge about breast-feeding practice during infant illness. Only 9% of mothers had the correct knowledge to increase breast feeding if the infant was ill and 20% felt breast feeding should be decreased during illness of child. Mothers had very poor knowledge about nutritious food. Also, they relied heavily on market available products and were not aware of nutritional foods, which could be made at home. The attitude score was created using the Likert scale with a minimum score of 16 and maximum score of 64. The mean attitude score was 54.29 with a standard deviation of 5.24. In terms of breast-feeding practices, 74 (24.6%) mothers did not initiate breast-feeding within one hour of birth, and only 21 (7%) mothers increased breast feed frequency during illness of child. Breast feeding practices by mothers of these children are shown in Table 1. The most common diet given to the children were Indian bread, rice and one vegetable. The term 'special food' was used for items such as noodles and fried items.

Children were considered to be malnourished if their anthropometric measurements were more than two standard deviations below the median of the WHO international growth standards on their height-for-age

(stunting), weight-for-height (wasting), and weight-for-age (underweight). In this study, severe stunting was found among 91 children (30.3%) and moderate stunting among 66 children (22%). Severe wasting was observed among 36 (12%) children and moderate wasting among 49 children (16.3%). 57 children (19%) were severely underweight and 76 (25.3%) were moderately underweight. Tables 2, 3 and 4 show the gender wise differentiation of malnutrition. There was no significant association between gender and malnutrition in this population at 95% confidence interval. Higher birth weight was negatively correlated with stunting ($R = -0.095$).

Table-1: Breast feeding practices by mothers

Breast Feeding initiation after child birth	N (%)
Within one hour	226 (75.4)
Between 1-24 hours	52 (17.3)
After 24 hours	22 (7.3)
Total	300 (100)

Table-2: Relationship between gender and stunting among children

Gender	Moderate Stunting	Severe Stunting
Male	36	49
Female	30	42
Total	66	91

Chi square = 0.006; p > 0.05, Not significant at 95% CI

Table-3: Relationship between gender and wasting among children

Gender	Moderate wasting	Severe wasting
Male	26	23
Female	23	13
Total	49	36

Chi square = 0.97; p > 0.05, Not significant at 95% CI

Table-4: Relationship between gender and underweight among children

Gender	Moderate underweight	Severe underweight
Male	37	32
Female	39	25
Total	76	57

Chi square = 0.97; p > 0.05, Not significant at 95% CI

Discussion

The study found incomplete or incorrect knowledge about breast-feeding among mothers. However, the overall attitude score towards nutrition of children was good. Also, practices leading towards good nutrition among children were very poor. Having a relatively good attitude towards nutrition of their children provides an opportunity for intervention. The effect of chronic malnutrition was high as the prevalence of stunting was more than wasting and underweight. A very recent study on gendered effects of siblings on malnutrition found that having brothers heightens girl risk for acute malnutrition (wasting), where having multiple female siblings increases a girl's risk for chronic malnutrition

(stunting/underweight).^[15] However, this study did not find any significant gender or sibling-based effect on malnutrition.

A study by Gupta et al.^[16] concluded that maternal education and KAP are significantly and independently associated with children's nutritional status. Also the content areas of knowledge, attitudes and practices significantly associated with nutritional status pertain to nutritional requirements of children, nutritional value of foods, immunization, hygiene, oral rehydration and diarrhea. A study in rural South India found that the child's gender and socioeconomic factors were stronger risk factors for malnutrition than healthcare availability and health-care-seeking attitudes.^[17] Healthy feeding practices during child illness were few and inappropriate ones predominated. Similar finding have been reported in a study on diet beliefs during childhood illness.^[18] The Dharavi project^[19], which investigated malnutrition in the urban slum of Dharavi found that many of the problems of infant health in Dharavi are due to environmental conditions out of the control of the health services.

Three indices i.e. height-for-age (stunting), weight-for-height (wasting), and weight-for-age (underweight) were considered for assessing malnutrition. Each index provides different information about growth and body composition, which is used to assess nutritional status. Stunting is a chronic condition that is indicative of a failure to receive adequate nutrition over a long period of time. A child nutrition report published by UNICEF in 2013 showed 48% stunting prevalence, 43% underweight prevalence and 20% wasting prevalence among Indian children in 2012.^[20] The weight-for-height index measures body mass in relation to body length. There are some conflicting arguments regarding the most appropriate measurement to examine malnutrition. There is a need to either rely on proper measures of protein and other micronutrients in the body or, in case this is not feasible, develop country- or even region-specific norms that help to identify malnutrition resulting from the lack of a balanced diet^[21]. However, in the absence of these, the current study used the WHO guidelines for measuring malnutrition.

The malnutrition findings in this study are similar to the findings by UNICEF^[20], NFHS-3^[5] and the CNSM report^[6]. A study on trends in malnutrition based on NFHS data (1992-2006) indicate a sluggish change in malnutrition in India.^[22] In a study in rural Shaanxi, China,

malnutrition prevalence rates were 32.14% for underweight, 39.58% for stunting, and 11.31% for wasting.^[23] Parental education, economic and nutritional characteristics, child-feeding practices, and birth-order were important risk factors for severe underweight in a population study in Bangladesh.^[24]

It has been estimated that undernutrition, including stunting and wasting along with sub-optimal breastfeeding was a cause of 3.1 million child deaths annually or 45% of all child deaths in 2011.^[25] Also, micro nutrient deficiency has been identified as a major contributor to malnutrition.^[26] A study in Egypt found that mothers with higher education having a lower risk of stunting in their children.^[27] However, this study did not find any significant association between the mother's education, breast feeding practice and stunting. Since 75% of the mothers breast-fed their child within one hour of birth, it suggests that environment and post breast feeding nutrition of child had a more direct influence on child's nutrition status. Measurement of micro nutrients was not done in this study and hence, there is scope for future research in this area.

Limitations: Since, the study was done in one urban slum with a limited sample size; generalization of the findings is limited. Also, the study relied on self-reported answers to questions on knowledge, attitude and practices and hence, the findings are subject to recall bias.

Conclusion

The study found gaps in knowledge about breast-feeding among mothers and very poor practices related to good nutrition for children. However, overall the mothers had a very positive attitude about improving nutrition of their children and were willing to learn about it. Hence, this provides an opportunity for intervention. The study recommends a targeted intervention programme among the mothers of under five children in this population. The intervention while improving the knowledge levels of mothers should create practical demonstrations of creating cheap and nutritious food at homes. The Dular strategy in Bihar, Jharkhand initiated by UNICEF, India uses a model of developing community resources for tackling malnutrition.^[28] This research having already trained community workers in the issue of malnutrition has positioned itself appropriately to follow the Dular strategy. In addition, the local Non-Governmental organization (NGO), anganwadi workers and link

workers from the public health department of Navi Mumbai Municipal Corporation (NMMC) can be involved in this activity as they have the potential to transform it into a cost-effective intervention.

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