Original Research Article

A cross-sectional study to evaluate malnutrition prevalence in under 5 children and health seeking behaviour of their parents in an urban slum area of a metropolitan city

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ABSTRACT

Background: Malnutrition is widespread in rural, tribal and urban slum areas and it is a significant public health problem described as a silent killer, silent emergency, and invisible enemy affecting those who cannot express their voice and have to depend upon others for their advocacy. Numerous studies showed that education of parent’s, especially maternal education emerges as a key element of an overall strategy to address malnutrition. The best global indicator of children’s wellbeing is growth. Assessment of anthropometry is the single measurement that best defines the nutritional and health status of children, and provides an indirect measurement of the quality of life of the entire population.

Methods: Community based cross-sectional study was carried out in an urban slum area of Mumbai city, Maharashtra. Total 300 children of 0-5 years of age were enrolled in the study. A list of all the children below five years of age belonging to study area was taken from the health post situated in premises of UHTC. All mothers or primary care takers of the children were interviewed and weight and height of the children was recorded.

Results: Prevalence of underweight, stunting and wasting was 69.33%, 60.33% and 45.66% respectively. Mother’s literacy, low birth weight and morbidities like diarrhoea, fever and cough in previous fifteen days were significantly associated with malnutrition.

Conclusions: Chronic malnutrition was more prevalent in this area. Mother’s literacy had a much higher impact on better nutritional status of children. Morbidities like diarrhoea, fever and cough had made the children nutritionally vulnerable as malnutrition was higher in those children.

Keywords: Under five children, Urban slum, Prevalence, Malnutrition

INTRODUCTION

Malnutrition is the principal cause of child deaths. Half of all child deaths in India could be prevented if this one issue is tackled. Children die because malnutrition lowers a child’s resistance to infection. Malnutrition is one of the largest factors suppressing India’s spectacular growth. In a country of lunar missions and nuclear power, a staggering 48% of all Indian children under five years old are still underweight. Malnutrition is widespread in rural, tribal and urban slum areas and it is a significant public health problem described as a silent killer, silent emergency, and invisible enemy affecting those who cannot express their voice and have to depend upon others for their advocacy.

India is home to one of the largest number of children in the world and records about 27 million births per year.
India stood at 49 position in respect Under-5 mortality and the Under-5 mortality rate (U5MR). 2012 was 56. As 60 million children are underweight in India. It impacts on health education and productivity, persistent under nutrition causing major obstacle to human development and economic growth in the country especially among the poor and vulnerable. In India the physical impairment associated with malnutrition is estimated to cost more than 2-3% of GDP per annum even without considering the long-term productivity losses associated with development and cognitive impairment.5

Numerous studies showed that education of parent’s, especially maternal education emerges as a key element of an overall strategy to address malnutrition.5 The best global indicator of children’s wellbeing is growth. Assessment of anthropometry is the single measurement that best defines the nutritional and health status of children, and provides an indirect measurement of the quality of life of the entire population.

The purpose of this study was to examine and illustrate the relationship between child’s nutritional status and parent’s knowledge of the cause of childhood malnutrition, their educational background and their attitude towards the resources available to improve their children’s condition and socioeconomic background. Health seeking behaviour of their parents was assessed using the framed set of questions regarding the measures taken by them when the child suffers from any illness and a correlation was drawn between the health seeking behaviour of the parents and health status of the child.

METHODS

It was a community based cross-sectional study. The study was conducted in urban slum located in the field practice area of urban health training centre affiliated to a teaching institute and medical college. Study period was of 20 months i.e., from December 2015 to September 2017. This includes planning up the study, setting up protocol, getting the necessary approvals, data collection, analysis of data, data interpretation. Protocol was approved from the institutional committee.

Children between 0-5 yrs. of age group living in the above mentioned locality were included in the study and children, whose parents were not willing to participate, children’s with physical deformity and anthropometry couldn’t be taken were excluded. Taking a prevalence of 48% underweight (as stated by NFHS 3) children a sample size of 300 was derived at using the formula

\[ n = 4PQ/d^2 \]

The study area selected was sub urban slum in a metropolitan city. A list of all the children below five years of age belonging to study area was taken from the Health post situated in premises of UHTC. The list of “Pulse Polio Immunization” was comprehensive and contained details of all children below 5 years of age. This list was acquired from health post and used for selecting the child for the study purpose.

The sample of children to be studied was taken from the list by generating random number using “Open Epi-Info” software till the sample size was reached (simple random sampling). The place of residence of the selected children was visited. Face to face interview and necessary information was taken from the parents of the children with the help of “Balwadi” teachers of NGO working in that area. In case, the parents of the child were not available at the time of visit to the residence, the household was revisited shortly, at a time when they were expected to be available. Informed consent was taken from the mothers after explaining them the purpose of the study. Information on demographic, socioeconomic and child characteristics, which included the children’s health status, in the past month prior to the survey, severity of the illness and the mothers’ health seeking behaviour, was collected. The children were classified as stunted, wasted, underweight or normal using the modified WHO growth charts and the WHO standard charts for height-for-age, weight-for-age and weight-for-height charts. Separate charts were used for the boys and girls, as recommended by the WHO. WHO’s “ANTHRHO” software was used to classify the above subjects based on their anthropometric parameters.

The determinants of the health status of the child were sought after using the structured set of Anthropometric measurements and health seeking behaviour was assessed with the help of the questionnaire and correlated with the health of the child. Data was entered into excel sheet and then pulled to SPSS for statistical analysis. Test of significance (Pearson’s chi-square test) was applied to find out the association.

RESULTS

In the present study comprising of 300 children aged 0-5 years, 157 (52.34%) were males and 143 (47.66%) were female children. With regards to age distribution it was observed that highest children were found in 49-60 months (22.66%). In this study, majority 187 (62.33%) children were Muslims and 86 (28.66%) children belonged to Hindu religion. Out of total children 195 (65%) children belonged to the joint family and only 35% children belonged to nuclear family. With regards to socio-economic status, majority 191 (63.7%) of children belonged to middle class according to modified B.G. Prasad’s classification. 80 (26.7%) children belonged to lower middle and 29 (9.7%) of the children belonged to lower class. There were no children in the class I or class II socio-economic status.

In context to literacy status of parents, literacy rate among mothers was 80.7% and 67.3% fathers were literate. The female literacy status was higher in our study as compared to national average of 72.9% female and
state average of 70.7%. Further among literate mothers, 242 (80.7%) had primary education and 58 (19.3%) had secondary and higher secondary education.

As shown in Table 1, According to WHO growth standard (2006) out of total 300 involved children in the study, percentage of underweight (low weight-for-age) was 27.8%, 39.2% and 40.0% respectively but difference was not statistically significant (p=0.370, p=1.000). In regards with wasting, prevalence was higher in male affecting 34.6% and 46.3% children respectively but difference was not statistically significant (p=0.245). Similarly stunting was higher in female affecting 34.6% and 46.3% children (17.7%) but this difference was also not statistically significant (p=0.927) (Table 2).

According to age group underweight was present in 80 (26.5%) children in 0-12 month age group. In the 13-24 months age group 96 (32.1%) children were underweight. Similarly in the 25-36 months, 37-48 months and 49-60 months age group children the prevalence of underweight was 27.8%, 39.2% and 40.0% respectively. Although the prevalence was highest with 40.0% in 49-60 months age group being underweight the difference was not statistically significant. (p=0.245). Similarly stunting was highest with 58.3% in 13-24 months age group and lowest with 30.1% in children in age group of 0-12 months. Here the difference was found to be statistically significant (p=0.001).

Regarding wasting, it was highest in 13-24 months age group and 49-60 months age group both 11 affecting 25.7% children. The distribution of wasting among age group found statistically significant (p=0.03). In our study only in stunting the second year of life was significantly more affected.

In our study prevalence of underweight and stunting was higher in female affecting 34.6% and 46.3% children respectively but difference was not statistically significant (p=0.370, p=1.000). In regards with wasting, prevalence was higher in male (17.7%) but this difference was also not statistically significant (p=0.927) (Table 2).

The prevalence of underweight among children borne by illiterate mothers and literate mothers was 56.10% and 35.5% respectively and difference was highly significant (p=0.000). In the height for age criteria, stunting was noted in 40% and 24% of children born by illiterate and literate mothers respectively but difference was not statistically significant (p=0.927) (Table 2).

Table 1: Distribution of children according to WHO classification (n=300).

| Indices     | Undernourished | Severely undernourished | Total |
|-------------|----------------|-------------------------|-------|
| N           | %              | %                       | N     |
| Underweight | 137            | 38.33                   | 206   |
| Stunting    | 181            | 60.33                   | 282   |
| Wasting     | 206            | 45.66                   | 408   |

Table 2: Distribution of malnutrition in children according to age and sex (n=395).

| Age (months) | Total | Underweight | Stunting | Wasting |
|--------------|-------|-------------|----------|---------|
|              | N     | %           | N        | %       | N       | %       |
| Upto 12      | 52    | 17.3        | 80       | 26.5    | 90      | 30.1    | 20      | 6.66    |
| 13-24        | 55    | 18.33       | 96       | 32.1    | 175     | 58.3    | 33      | 11      |
| 25-36        | 64    | 21.33       | 83       | 27.8    | 126     | 41.2    | 29      | 9.66    |
| 37-48        | 61    | 20.33       | 118      | 39.2    | 170     | 56.8    | 22      | 7.33    |
| 49-60        | 68    | 22.66       | 120      | 40      | 137     | 45.6    | 33      | 11      |

Table 3: Distribution of malnutrition in children according to common morbidities in last 15 days (n=300).

| Morbidity     | Total | Underweight | Stunting | Wasting |
|---------------|-------|-------------|----------|---------|
|               | N     | %           | N        | %       | N       | %       |
| Diarrhoea     | 120   | 88          | 73.16    | 76      | 63.25   | 42      | 35.2    |
| Fever         | 105   | 68          | 65.12    | 57      | 54.21   | 31      | 29.20   |
| Cough         | 96    | 60          | 62.74    | 56      | 59.23   | 29      | 30.25   |
| Worm infestation | 126  | 73          | 58.12    | 67      | 52.33   | 38      | 30.14   |
The findings of the study reflect that mother’s educational qualification is strongly associated with nutritional status of their children. Mother’s literacy played a protective role against malnutrition in children. This might be due to better health care practices in terms of proper exclusive breast feeding, in-time complementary feeding and quality and quantity of complementary feeding among literate mothers as compared to illiterate mothers.

In the present study, the proportion of children who were malnourished gradually increased from the birth to 5 years. The proportion of malnourished children in age groups of up to 12 months, 13-24 months and 25-36 months, 37-48 months and 49-60 months were 38.4%, 60%, 45.3%, 36.06% and 48.5% respectively (Table 2). This could probably because, till 6 months of the age, the nutritional needs of the child are adequately met by the breast milk. Beyond the 6 months, if the complementary feeds are not started in appropriate amounts, frequency and quality, the nutritional status of the child gets affected. However, no statistically significant association was found between the age of the child and the nutritional status in the study.

The prevalence of underweight, stunting and wasting was found higher in children with morbidities like diarrhoea, fever, cough and worm infestation in last 15 days. Findings in our study were similar as compared with another study conducted by Kumar et al in urban slums of Mysore city where prevalence of underweight, stunting and wasting was found to be 38 percent of female children compared to 32 percent of male children were underweight and 53 percent of female children compared to 48 percent of male children are stunted.

It was observed that there was a declining trend of malnutrition with increase in educational qualification of the mothers.

A number of studies have found a similar relation between the maternal education and nutritional status of the child. The CNSM reported that 33.2% of the children belonging to illiterate mothers were malnourished, as compared to only 18.4% in whom mothers were educated for 10 or more years.

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CONCLUSION

In our study, nearly one third of children were underweight (32.4%), half of children were stunted (46.1%) and one fifth of children were wasted (17.2%). So, chronic malnutrition was more prevalent in this area. No child was found to be overweight or obese. Mother’s literacy had a much higher impact on better nutritional status of children. Low birth weight was found to have adverse effect on nutritional status of children. Morbidities like diarrhoea, fever and cough had made the children nutritionally vulnerable as malnutrition was higher in those children.

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