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Original Research Article

Socio-demographic determinants of malnutrition among school going children in an urban slum area of central India with special reference to nutritional anaemia

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ABSTRACT

Background: Children residing in urban slum area are the most vulnerable. Poverty, illiteracy, neglect of health, low socioeconomic status and non-affordability of quality health care services make them more vulnerable to malnutrition.
Methods: 361 school going children residing in urban slum area were included in study. Socio-demographic details of the children taken from their parents. Health check-up was done.
Results: Prevalence of malnutrition was 40.17%. 17.17% children were underweight and 22.99% were stunted.
Conclusions: Family size and socioeconomic status are the important determinants of malnutrition.

Keywords: Malnutrition, Slum, Nutritional anaemia, Family size, Socio-demographic

INTRODUCTION

The school going age is the dynamic period of physical growth and development, when children undergo mental, emotional and social change. School health services still is a neglected branch of community health. 1st school health service was started in Baroda city in 1909.[1]

India is in the phase of socio-demographic and health transition. Optimal nutrition and good health is important for overall human development. There is variation in nutrition status of people living in urban and rural areas.[2] Urban poor are the most neglected peoples in the community. This study peeps into the socio-demographic factors associated with malnutrition among school going children living in an urban slum area.

Aims and objectives

1. To find out the prevalence of malnutrition among school children in a slum area of a metropolitan city.
2. To find out socio-demographic determinants of malnutrition.
3. To find out prevalence of nutritional anaemia among school children in slum area and determine association with malnutrition.

METHODS

Study design: Cross sectional study.

Study setting: Study was conducted in a slum area of a metropolitan city in central India.

Study period: Study was conducted from October 2017 to March 2018.

Inclusion criteria

School children in the age group 6-12 years residing in slum area included in the study.

Exclusion criteria

Exclusion criteria were not residing in slum; those who are not willing to participate in the study.

Sample size calculation

Prevalence of malnutrition from the previous studies is 30%.[5-7,10,12]

$n= (Z_{\alpha/2})^2 \times p \times q/d^2$

Where Z=1.96, p=Prevalence=30%, q=1-p, d= absolute precision taken as 5%.

So, the sample size comes to 339. (Including non-response rate of 5%) So, the sample size rounded to 400. But only 361 children could be included in the study.

The study was conducted in a primary school of slum area of a metropolitan city. The students living in slum area were chosen as study participant. Students in the age group 6 -12 years were included in the study. Permission from the school authority was taken. Informed consent was taken from parents of the students. Basic socio-demographic information was collected from the parents.

Weight was measured by using bathroom weighing scale by adjusting scale to zero before weighing and asking the student to stand erect. Height was measured by stadiometer asking the student to stand erect and looking straight. Lower palpebral conjunctiva was checked for the presence or absence of pallor.

Underweight defined according to WHO (World Health Organization) guidelines as: weight for age <2 SD (standard deviation) and stunting as height for age <2 SD of the WHO child growth standard median.[3]

Data analysis

Data was entered in excel sheet and analyzed by using SPSS software version 22.

RESULTS

Table 1 shows that most of the children were belonging to the age group 6-8 years. 57% of the children were from upper lower socioeconomic status according to the modified Kuppuswamy's scale of socioeconomic status.

Table 1: Classification of school children according to age group and socioeconomic status (n=361).

	Male (%)	Female (%)	Total (%)
Age group (years)			
6-8	84 (48.55)	91 (48.40)	175 (48.48)
8-10	60 (34.68)	74 (39.36)	134 (37.12)
10-12	29 (16.76)	23 (12.23)	52 (14.40)
Socioeconomic status*			
Upper	3 (1.73)	4 (2.13)	7 (1.94)
Upper middle	18 (10.40)	11 (5.85)	29 (8.03)
Lower middle	44 (25.43)	49 (26.06)	93 (25.76)
Upper lower	96 (55.49)	110 (58.51)	206 (57.06)
Lower	12 (6.94)	14 (7.45)	26 (7.20)

*Socioeconomic status of school children (According to modified Kuppuswamy scale).

Table 2: Factors associated with malnutrition (n=361).

	Normal (%)	Malnourished (%)	
Family size			
1	12	4	χ^2= 10.074 df= 4 p=0.039
2	27	10	
3	40	18	
4	75	54	
5 and above	62	59	
Socioeconomic status			
Upper	4	3	χ^2= 12.38 df= 4 p=0.014
Upper middle	20	9	
Lower middle	65	28	
Upper lower	118	88	
Lower	9	17	
Anaemia			
Pallor	152	112	χ^2= 2.084 df= 1 p=0.1488
No Pallor	64	33	

Table 2 shows that, there was statistically significant association between family size and malnutrition. There was also significant association between socioeconomic status and malnutrition.

62 (17.17%) children were underweight for their age. Prevalence of stunting was 22.99% which indicates chronic malnutrition.

DISCUSSION

In a study conducted by Dey in Assam, prevalence of stunting and underweight among students in the age group 6-15 years is 24.54% and 63.27% respectively.[4] Similarly in Bijpaur district, prevalence of stunting is 25% and underweight 34.15% was found by Shashank. He also found that mother's education status is significantly associated with stunting.[5] Stunting, underweight and wasting is more common in children belonging to low socioeconomic status. In our study

prevalence of stunting and underweight was 22.99% and 17.17% respectively. Prevalence of stunting was more than underweight.

In a Study conducted by Raheela in Pakistan, 29.5%, 13% and 35% of the school children in the age group 5-10 years are underweight, wasted and stunted respectively. There is no statistically significant association between family size and malnutrition.[6] In our study there was significant association between family size and malnutrition.

In a study conducted in Nigeria, 7% children are stunted, 26% are wasted and 28% are underweight.[7] Prevalence of nutritional anaemia is 41.8% and almost half of the school children are malnourished shown in a study conducted in an urban slum area of Delhi by Sunil Gomber.[8] In our study prevalence of anaemia was 73.1%.

Prevalence of underweight and stunting is 84% and 60% respectively in an urban slum area of Bangladesh. There is statistically significant association between stunting and family size.[9]

41% of the primary school children are malnourished belonging to lower socioeconomic status compared to 19% belonging to upper socioeconomic status. Prevalence of malnutrition is 30% found in a study conducted in Pakistan. Large family size, poverty and low literacy level among women are associated with malnutrition.[10] In our study family size was significantly associated with malnutrition.

In a study conducted in Bangladesh, 60% of the school children are stunted and 65% are underweight. Families having single child have more chance of having normal nutritional status child. Severity of malnutrition increases as the family size increases found in a study conducted in Patna.[11]

In a study conducted in Karnataka in rural area, 27.9% of the school children in the age group 6-12 years are stunted, 30% are underweight and 1/4th are anaemic.[12] Undernutrition is more common lower socioeconomic status especially in children residing in slum area.[13]

CONCLUSION

Family size and socioeconomic status are the important socio-demographic determinants of malnutrition.

Recommendations

School health services should be provided to the children residing in urban slum area regularly. Nutrition education should be imparted to the people living in slum area so that they can modify their dietary pattern. Social customs of the people need to be studied in detail.

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