

Study of nutritional status of preschool children in areas of Kallur Primary Health Center, Kurnool District

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Abstract

Background: The level of undernutrition in children remains unacceptable throughout the world, with 90% of the developing world's chronically undernourished (stunted) children living in Asia and Africa.

Objective: To study the nutritional status and to reveal the factors influencing the nutritional status among preschool children.

Materials and Methods: This was a community-based cross-sectional study conducted by carrying out a door-to-door survey among 330 preschool children of age between 0 and 6 years in Kallur primary health center area during March 2014 to September 2014. Weight for age was calculated and child's age, gender, mother's education, type of house, type of family, socioeconomic status (modified BG Prasad 2014), religion, and caste of the family were collected.

Result: Most of children in the study area were suffering from grade 1 (34.5%) malnutrition followed by grade 2 malnutrition (33.1%), grade 3 malnutrition (6.1%) and grade 4 malnutrition (1.5%). Severe malnutrition constitutes 7.6%. Significant association was found between malnutrition and child's age, gender, mother's education, religion, type of house, and family.

Conclusion: Severe degree of malnutrition was found only among children of the illiterate mothers. It was also found only among children of families with class 4 and class 5 socioeconomic statuses. Negative association was found between standard of housing and nutritional status.

KEY WORDS: Malnutrition, under five children, PHC, sociodemographic factors

Introduction

The level of undernutrition in children remains unacceptable throughout the world, with 90% of the developing world's chronically undernourished (stunted) children living in Asia and Africa. Detrimental and often undetected until severe, undernutrition undermines the survival, growth, and development of children and women, and diminishes the strength and capacity of nations. With persistently high levels of undernutrition in the developing world, vital opportunities to save

millions of lives are being lost, and many more millions of children are not growing and developing to their full potential.^[1] In India, 20% of children below 5 years of age suffer from wasting because of acute undernutrition. More than one-third of the world's children who are wasted live in India. Forty-three per cent of Indian children under 5 years are underweight and 48% (i.e., 61 million children) are stunted because of chronic undernutrition. India accounts for more than three of every ten stunted children in the world.

Undernutrition is substantially higher in rural than in urban areas.^[2] Every year 7.6 million children die because of such preventable malnutrition and its related causes.^[3] Malnutrition is a silent emergency.^[3]

Below 5 years children comprise about 13% of the total population. The World Health Organization estimates that about 60% of all deaths, occurring among children aged less than 5 years in developing countries, could be attributed to malnutrition.^[4] The percentage of children who are severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers

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have 12 or more years of schooling. Malnutrition among preschool children has been recognized as a major public health problem in many developing countries. Undernutrition is implicated in more than half of all child deaths worldwide.^[5] India has the unfortunate distinction of having nearly 70 million malnourished children in the world. Gomez et al.^[6] defined malnutrition as “pathological condition, of varying degrees of severity, clinical manifestation resulting from deficient assimilation of the components of nutrient complex.” Effects of malnutrition on community are both direct and indirect. The direct effects are the occurrence of nutritional diseases, kwashiorkor, marasmus, vitamin, and mineral deficiency diseases. The effects of malnutrition lead to morbidity and mortality among young children. Nutritional status of the children is a sensitive indicator of community health. Previous studies have shown that the prevalence of malnutrition in Kurnool District was 32%. Therefore, this study was aimed to estimate the prevalence of undernutrition among preschool children in areas of Kallur Primary Health Center (PHC) and also to reveal the various sociodemographic factors influencing the nutritional status of preschool children in areas of Kallur PHC.

Materials and Methods

This was a community-based cross-sectional study conducted by carrying out door-to-door survey among preschool children of the age between 0 and 6 years in Kallur PHC area during March 2014 to September 2014. The sample size was 330 children of 0 to 6 years of age ($p = 31.4\%$, 20% power, and 95% confidence interval). This sample was selected by simple random sampling method. After selection sample, a house-to-house visit was made and information regarding the children's sociodemographic data and present nutritional status was collected. Sociodemographic factors such as child's age, gender, mother's education, type of house, type of family, socioeconomic status (modified BG Prasad 2014), religion, and caste of the family was collected. Each child was weighed by spring weighing scale and classified according to IAP (Indian Academy of Pediatrics) classification (weight for age). Data were entered and analyzed by SPSS 20th version. Descriptive statistics and chi-square test were used to test the level of significance ($p < 0.05$).

Result

The total number of children surveyed was 330, which constituted 173 (52.4%) boys and 157 (47.6) girls.

Most of the children in the study area were suffering from grade 1 (34.5%) malnutrition followed by grade 2 (33.1%), grade 3 malnutrition (6.1%) and grade 4 malnutrition (1.5%).

Malnutrition was more among children aged above 3 years. This was statistically significant. Malnutrition was more among girls compared with boys. In this study, majority of mothers of children were illiterate. Severe degree of malnutrition was found only among children of illiterate and

just literate mothers and this was statistically significant. Malnutrition was more common in children living in katcha houses compared to children living in pucca and semi pucca houses and this difference was statistically significant. In this study, association between nutritional status and type of family was statistically significant. Severe degree of malnutrition was found only among children with class 4 and class 5 socioeconomic status. This was not statistically significant. Most of the children belonged to Hindu families (224), that is, 67.88%, 84 children belonged to Muslim families. In this study, association between nutritional status and religion revealed that it was statistically significant. There was no significant difference in nutritional status according to caste.

Discussion

In this study, children's nutritional status was classified according to IAP classification based on weight for age. Weight shows the earliest and sensitive change in the nutritional status of a child. Most of the children were suffering from grade 1 malnutrition followed by grade 2. Severe malnutrition constitutes 7.58%, which requires hospitalization. Malnutrition was more among children aged above 3 years. This was statistically significant. Study conducted by Ramalho et al.^[7] showed that malnutrition was more among children >3 years of age, which was not significant. Study conducted by Islam et al.^[8] showed that prevalence of underweight was the highest (63.8%) in the age group 48–60 months. Study conducted by Singh et al.^[9] revealed that age group-wise prevalence of undernutrition was highest in the 37–48 months age group and lowest in 0–12 month's age group. Diet pattern differs for both the groups, one group was confined to home, and other group was exposed to group behavior and nonformal

Table 1: Age and gender-wise distribution of study children

Age group (years)	Male	Female	Total
0–1	24	22	46
1–2	25	27	52
2–3	33	34	67
3–6	91	74	165
Total	173 (52.4%)	157 (47.6%)	330

Table 2: Distribution of study children according to IAP classification of malnutrition

Grade	Number	Percentage
Normal	82	24.8
1	114	34.5
2	109	33.1
3	20	6.1
4	5	1.5

IAP, Indian Academy of Pediatrics.

Table 3: Association of IAP grading of malnutrition and sociodemographic factors

Sociodemographic factor		Grade 1	Grade 2	Grade 3	Grade 4	p-Value
Age	<1 year	14	5	0	0	0.04
	1–3 years	41	47	6	0	
	3–6 years	59	57	14	5	
Gender	Male	58	53	7	2	0.02
	Female	53	57	12	4	
Education of mother	Illiterate	88	95	18	5	0.00
	Literate	26	14	2	0	
Type of house	Pucca	41	28	2	0	0.00
	Semi-pucca	31	25	6	3	
	Katcha	42	56	12	2	
Type of family	Nuclear	95	56	1	3	0.00
	Joint	13	32	4	1	
	Three generation	6	21	6	1	
Socioeconomic status	Class 1	0	0	0	0	0.37
	Class 2	0	0	0	0	
	Class 3	2	0	0	0	
	Class 4	51	28	6	1	
	Class 5	61	81	14	4	
Religion	Hindu	65	94	13	4	0.00
	Muslim	40	13	6	1	
	Christian	9	2	1	0	
Caste	BC	65	59	11	2	0.48
	SC	23	25	6	2	
	OC	24	22	3	1	
	ST	2	3	0	0	

BC, ; IAP, Indian Academy of Pediatrics; OC, ;SC, ; ST.

education. Malnutrition was more among girls compared with boys. Study conducted by Ramalho et al.^[7] showed that malnutrition was more among boys, which is not significant. Study conducted by Islam et al.^[8] showed that prevalence of all kinds of undernutrition was more common among the boys than the girls, which was found to be statistically significant. Study conducted by Amosu et al.^[10] showed that malnutrition was more among girls compared with boys. Study conducted by Mukherjee^[11] showed that malnutrition was more among boys, which was not significant. In this study, majority of mothers of children were illiterate. Severe degree of malnutrition was found only among children of illiterate and just literate mothers and this was statistically significant. This study has shown that the effect of mother's education on nutrition status played a major role. Study conducted by Islam et al.^[8] showed that significant association was observed between the literacy status of parents and prevalence of all kinds of undernutrition, and prevalence of underweight decreased as the level of education of the mothers increased.^[8] Malnutrition was found more among children having katcha houses. Study conducted by Ramalho et al.^[7] showed that malnutrition was more among children having house made with wood or soil, which was significant. This difference was statistically significant. Negative association was found between the standard of housing and

nutritional status. In this study, association between nutritional status and type of family revealed that it was statistically significant. Study conducted by Islam et al.^[8] showed that the prevalence of underweight was more (30.3%) among the children belonging to joint families than that of nuclear families and a significant association was found between the prevalence of wasting and type of family. Severe degree of malnutrition was found only among children with class 4 and class 5 socioeconomic statuses. This was not statistically significant. Study conducted by Singh et al.^[9] showed that association of socioeconomic class with malnutrition was not found to be statistically significant. Most of the children belonged to Hindu families (224), that is, 67.88%. A total of 84 children belonged to Muslim families.^[9] In this study, association between nutritional status and religion revealed that it was statistically significant. There was no significant difference in nutritional status according to caste.

Conclusion

This study concluded that severe degree of malnutrition (grade 3 and 4) was found among 7.58% of the children. Severe degree of malnutrition was found only among children

of illiterate and just literate mothers. It was also found only among children of families with class 4 and class 5 socioeconomic statuses. Negative association was found between the standard of housing and nutritional status. Significant association was found between malnutrition and child's age, gender, mother's education, religion, type of house, and family.

From the above findings, this study recommended that supplementary feeding programs should be strengthened in the anganwadi centers for preschool children. IEC (information, education, communication) activities should be intensified in the ICDS (Integrated child development services scheme) project areas. Regular supervision and monitoring of anganwadi centers and subcenters of PHC for early detection of nutritional problems and giving appropriate measures against those.

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