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Original Research Article

Factors related to under nutrition among children in a rural area in Patan district of Gujarat, India

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ABSTRACT

Background: Malnutrition is defined as 'undernutrition' resulting from inadequate consumption, poor absorption or excessive loss of nutrients and also includes 'overnutrition', resulting from excessive intake of specific nutrients. Infant-feeding practices play a major role in child caring practices apart from socio-cultural, demographic and economic factors. The present study was conducted to assess socio-demographic and other factors associated with undernutrition in rural areas of Patan.
Methods: This present study was conducted at 6 Anganwadi centers of Kungher rural area of Patan during 2017-2018. Total 293 of 1 to 5 year children were included in the study. Secondary data was collected through study of records and reports from AWW. Mothers of selected children were interviewed for collecting desired information. The children were examined for anthropometric parameters (weight and height) and nutritional status.
Results: Out of 293 children 159 (54.2%) subjects were males. Total 190 (64.8%) children were ICDS beneficiaries. More than half of children (55.6%) were undernourished. Severe malnutrition was more distributed among unregistered (54.5%). Two third of illiterate mothers had undernourished children (69.8%). More than half of children (59.9%) belonging to lower socio economic class were undernourished. More than 2/3rd of low birth weight (LBW) children were found to be undernourished.
Conclusions: Child's nutritional status had significantly affected by maternal education and occupational status. Many other key factors such as family income, gender discrimination and LBW are playing an important role in nutritional status children.

Keywords: Malnutrition, Low birth weight, Breastfeeding, Education

INTRODUCTION

Malnutrition is defined as 'undernutrition' resulting from inadequate consumption, poor absorption or excessive loss of nutrients and also include 'overnutrition', resulting from excessive intake of specific nutrients.[1] Proper nutrition to children leading to adequate growth is the essential foundation of human development. Despite of Integrated Child Development Services (ICDS) malnutrition remains a significant problem in India. The proportions of underweight, wasting and stunting and severe acute malnutrition (SAM) among under-5 children in Gujarat are 39.3%, 26.4%, 38.5% and 9.5% respectively.[2] Severely malnourished children contribute significantly in under 5 mortality.

Infant-feeding practices play a major role in child caring practices apart from socio-cultural, demographic and economic factors. According to the World Health Organization, all infants should be exclusively breastfed for the 6 months.[1] In Gujarat only half of infant exclusively breast feed in first 6 months.[3] Benefits of

breastfeeding are psychological, immunological, and developmental.[2] Need for educating mothers for proper infant-feeding practices has also been felt.[4-6]

The present study was conducted to assess socio-demographic and other factors associated with undernutrition in rural areas of Patan.

METHODS

This present study was conducted at Kungher, rural area of Patan during 2017-2018. The permission was obtained from Institutional Ethics Committee and Child development project officer (CDPO) of Patan block. A purposive sampling technique was used for selection children. Total 293 of 1 to 5 year children were included in the study. Overnutrition factor was excluded in our study. Secondary data was collected through study of records and reports from AWW. After written informed consent, mothers of selected children were interviewed for collecting desired information regarding socio-economic status (SES), educational status of mother, infant feeding practices. The average time taken by mother to respond to the questionnaires is 20 min. The children were examined for anthropometric parameters (weight and height) and nutritional status. Weight was recorded by a standard calibrated weighing scale on a firm horizontal surface.

Statistical analysis

The data was entered in "Microsoft Excel" and analyzed using the Epi info 7. The data for age, weight, height and birth weight were expressed as mean±SD. Comparison of quantitative variables was analysed by student t-test. Qualitative variables were described in percentages. Association between qualitative variables was done by chi- square test. A P-values less than 0.05 was considered significant was considered significant.

RESULTS

A total of 293 1 to 5 year children were included in the study. Out of which 159 (54.2%) subjects were males and 134 (45.7%) subjects were females. The mean age of children was 17.5±6.8 months. Total 190 (64.8%) children were ICDS beneficiaries. Total 163 children (55.6%) were undernourished. Factors related to malnutrition were described in Table 1 and Table 2. Table 1 shows that severe malnutrition (grade III and IV) was more distributed among unregistered (54.5%) as compared to registered children.

Proportion of undernourished children was higher in joint families (97, 57.7%) as compared to nuclear families (66, 52.8%). This difference was statistically not significant ($p>0.05$). Proportion of illiterate mother was 44.7%. Out of them, two third of illiterate mothers had undernourished children (69.8%). Under nutrition was observed in children of two third unskilled mothers (66.2%) who were significantly higher than children of housewives (52.4%). Modified Prasad socioeconomic scale is based on per capita income. We combined class I and II and considered as upper SE class and lower 3 class (class III, IV and V) as a lower SE class. Three fourth children (75.8%) belonging to lower socio economic class which were found to be undernourished (59.9%). Record of birth weight was found in only 173 children. More than 2/3rd of low birth weight children were found to be undernourished which was significantly higher than normal weighted children. We did not found significant relation of EBF and undernourishment.

Table 1: Characteristics of study participants.

Nutritional status	Normal	PEM Grade I	PEM Grade II	PEM Grade III	PEM Grade IV	Total	X^2 value P value
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Gender							
Male	82 (51.6)	23 (14.5)	32 (20.1)	15 (9.4)	7 (4.4)	159 (54.2)	X^2=6.7
Female	48 (35.8)	24 (17.9)	37 (27.6)	15 (11.2)	10 (7.5)	134 (45.7)	p<0.05
Age group							
12 to 24	48 (45.7)	17 (16.2)	25 (23.8)	10 (9.5)	5 (4.8)	105 (35.8)	
24 to 36	34(44.2)	14 (18.8)	19 (24.6)	7 (9.1)	3 (3.8)	77 (26.3)	X^2=0.5
36 to 48	27(37.5)	11 (15.3)	19 (26.4)	8 (11.1)	7 (9.7)	72 (24.6)	p>0.05
48 to 60	21(53.8)	6 (15.4)	8 (20.5)	4 (10.2)	3 (7.7)	39 (13.3)	
Registration with Anganwadi							
Registered	93 (48.9)	34 (17.9)	39 (20.5)	17 (8.9)	7(3.7)	190 (64.8)	X^2=10.4
Un registered	37 (35.9)	13 (12.6)	30 (29.1)	13 (12.6)	10(9.7)	103 (35.1)	p<0.05
Total	130 (44.4)	47 (16.0)	69 (23.5)	30 (10.2)	17 (5.8)		

Table 2: Sociodemographic factors related to undernutrition.

Nutritional status	Normal	Undernourished	Total	P value
	N (%)	N (%)	N (%)	
Family				
Joint	71 (42.3)	97 (57.7)	168 (57.3)	X^2=0.5
Nuclear	59 (47.2)	66 (52.8)	125 (42.6)	p>0.05
SE class				
Upper	41 (57.7)	30 (42.3)	71(24.2)	X^2=6.1
Lower	89(40.1)	133 (59.9)	222(75.8)	p<0.05
Education of mother				
Illiterate	32 (30.2)	74 (69.8)	106 (36.2)	X^2=6.7
Primary	46 (45.5)	55 (54.4)	101(34.5)	p<0.005
Secondary and above	52 (60.5)	34 (39.5)	86(29.4)	
Occupation of mothers				
Working	23 (33.8)	45(66.2)	68 (23.2)	X^2=3.0
Housewife	107 (47.6)	118 (52.4)	225 (76.7)	p<0.05
EBF				
Yes	71 (48.6)	75 (51.3)	146	X^2=1.8
No	59 (40.1)	88 (59.8)	147	p>0.05
Total	130	163	293	
***Birth weight**				
Normal	68 (49.6)	69 (51.4)	137(79.1)	X^2=4.6
Low birth weight	11 (27.8)	26 (72.2)	36 (26.2)	p<0.05

*Record of birth weight was found in only 173 children.

Proportion of undernourished children was higher in joint families (97, 57.7%) as compared to nuclear families (66, 52.8%). This difference was statistically not significant (p>0.05). Proportion of illiterate mother was 44.7%. Out of them, two third of illiterate mothers had undernourished children (69.8%). Under nutrition was observed in children of two third unskilled mothers (66.2%) which was significantly higher than children of housewives (52.4%). Modified Prasad socioeconomic scale is based on per capita income. We combined class I and II and considered as upper SE class and lower 3 class (class III, IV and V) as a lower SE class. Three fourth children (75.8%) belonging to lower socio economic class which were found to be undernourished (59.9%). Record of birth weight was found in only 173 children. More than 2/3rd of low birth weight children were found to be undernourished which was significantly higher than normal weighted children. We did not found significant relation of EBF and undernourishment.

DISCUSSION

The prevalence of undernourished was 55.6% in our study which is similar to the study conducted in Vadodara district of Gujarat by Zalavadiya (57.8%) and also in Latur district in Maharashtra by Surwade (55.56%).[7,8] In our study, the most common grade was grade II PEM (23.5%) and the least common grade was grade IV PEM (5.8%). This is in consonance with various studies such as study by Surwade.[8]

The present study revealed that mild to moderate undernutrition was higher among registered as compared to unregistered children. However, severe malnutrition (grade III and IV) was more distributed among unregistered (54.5%) as compared to registered children and this all difference was statistically significant. Study by Zalavadiya also found the lower utilization of service under ICDS scheme.[7]

Proportion of undernourished children was higher in joint families (57.7%) as compared to nuclear families (66, 52.8%). This may be due to either broken joint families, bigger family size or illiteracy in joint family. This was statistically not significant (p>0.05). The contradictory finding was found in the study by Dr. Joshi from Uttar Pradesh.[9]

It was observed that illiterate mothers had a higher number of undernourished children (69.8%). Our observation was supported by other studies.[9, 10] This shows that, Educated mothers are more conscious about their child's health. In our study, three fourth (76.7%) of the mothers were housewives. Under nutrition was observed in children of two third unskilled mothers (66.2%) which was significantly higher than children of housewives (52.4%). Mittal and Vyas also reported similar findings.[9,10] This suggests that crèches/play ways should be provided at working places. Three fourth children (75.8%) belonging to lower socio economic class which were found to be undernourished (59.9%) which was significantly higher than upper SE class. Our

observations are in corroboration with study conducted by Vyas in Uttarakhand.[10]

Low birth weight was significantly associated with undernourishment. Similar finding was observed by Dr. Shreyash from Surat.[11] We did not found significant relation of EBF and undernourishment. This was contradictory to result of Panpanich who found higher prevalence of under-nutrition among EBF children.[12]

CONCLUSION

From our observation, we found that almost half of children were undernourished. Child's nutritional status had significantly affected by maternal education and occupational status. Many other key factors such as family income, gender discrimination and LBW are playing an important role in nutritional status children. A collective attempt by the non-governmental organizations, government and the community should be made to reduce child malnutrition.

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