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A STUDY TO ASSESS THE PROTEIN ENERGY MALNUTRITION AMONG THE PRIMARY SCHOOL CHILDREN OF TARBHON VILLAGE OF SURAT, GUJARAT

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ABSTRACT

A descriptive study was conducted to assess the protein energy malnutrition among school children studying at Tarbhon Primary School of Surat district of Gujarat in the month of February 2017. A total of 150 school children belonged to the age group of 5 to 14 years were included in the study after obtaining informed consent by using non probability purposive sampling technique. A physical examination tool including anthropometric measurements was used to assess the BMI status of the children. Based on BMI status the school children were classified into four categories namely no malnutrition, mild malnutrition, moderate malnutrition and severe malnutrition. The results of the study depicts that out of 150 children, majority of the children belonged to the age group between 11-13 years (52%) and the minimum number (9%) were belonged to the age group between 5-7 years of age. The majority of subjects were male children 77 (51%) and rest 73 (49%) were female children. The majority of children 85 (57%) were residing at nuclear family and rest 65 (43%) were residing at joint family. Majority of children having Moderate malnutrition [79(53.5%)], minimum number of them were having severe Malnutrition [4 (2%)], and rest were having Mild malnutrition [63(42.5%)] status. Only 4 (2%) children were found to be normal and there is a significant relationship between Age and family structure with status of malnutrition. The study concludes that, there is an urgent attention is required by the government, parents of school children and school teachers towards prevention of PEM among the school children.

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INTRODUCTION

Growth assessment is the single measurement that best defines the health and nutritional status of a child, because disturbances in health and nutrition, regardless of their etiology, invariably affect child growth. There is ample evidence that the growth (height and weight) of well-fed, healthy children from different ethnic backgrounds and different continents is remarkably similar, at least up to six years of age (Habicht *et al.*, 1974). Based on this finding, WHO has been recommending that a single international reference population be used worldwide, with common indicators and cut-offs, and that standard methods be used to analyze child growth data (Waterlow *et al.*, 1977; WHO, 1995).

Each year approximately 2.3 million deaths among 6-60 months aged children in developing countries are associated with malnutrition, which is about 41% of the total deaths in this age group. A recent study, among children aged between 3

months and 3 years of age conducted in 130 districts through Demographic and Health Surveys in 53 countries over a period from 1986 to 2006 found that variance in mild under-weight has a larger and more robust correlation with child mortality than the variance in severe under-weight.

Malnutrition refers to the situation where there is an unbalanced diet in which some nutrients are in excess, lacking or wrong proportion. Simply put, we can categorize it to be under-nutrition and over-nutrition. Signs of PEM were higher in younger age groups of 3-5 years than in 11-33 years, while vitamin deficiency signs were more in 11-33 years age groups. The peak prevalence of Kwashiorker was frequently seen in the age group of 2-3 years and Marasmus in 1-2 years. About 50 % of children were anaemic.

According to WHO Global Data base on Child Growth and Malnutrition, published in 1992 states that, 87% of the malnourished children also suffer with the common most comorbidities such as diarrhea, malaria, sepsis, severe anaemia,

bronchopneumonia, HIV, tuberculosis, scabies, chronic suppurative otitis media, rickets, and kerato-malacia. Infectious diseases resulted in 9.2 million deaths in 2013 (about 17% of all deaths)

Statement of the problem

A descriptive study to assess the Protein Energy Malnutrition (PEM) among the school children studying at Tarbhon primary school, Tarbhon Village, Bardoli, Gujarat, India.

Objectives of the study

1. To assess the PEM among the school children.
2. To find out the association between the P E M and their socio demographic variables.

Hypotheses

H₀. There will be no association between PEM and demographic variable such as age, gender, family type and dietary pattern.

METHODOLOGY

A survey approach, non-experimental descriptive design was used to conduct study. A total number of 150 students including both male and female, were assessed by using physical examination tool in the month of February 2017 at Tarbhon Primary School, Tabhon, Surat. A structured socio-demographic sheet was prepared to elicit information about the children which includes Age, Gender, family type and dietary pattern. The tool consists of two section a) Physical Examination b) Anthropometric measurements (Height and Weight). The content validity of the tool was done by 5 experts in the field including medical officer Sarbhon PHC and Bardoli CHC. The reliability of the tool was elicited by using test retest method, then 'r' was computed for finding out the reliability. Reliability of the tool was r = 0.87. A prior permission was obtained before collecting the data from school head master.

RESULTS OF THE STUDY

The results of the study revealed that, out of 150 children, majority of the children belonged to the age group between 11-13 years (52%) and the minimum number (9%) were belonged to the age group between 5-7 years of age. The majority of subjects were male children 77 (51%) and rest 73 (49%) were female children. The majority of children 85 (57%) were residing at nuclear family and rest 65 (43%) were residing at joint family.

Table No. 1 Distribution of Primary School Children according to their Socio demographic variables. n=150

Sl. No.	Demographic Variable	Frequency	Percentage (%)
1	Age		
	a.05-07 years	21	14
	b.08-10 years	37	25
	c.11-13 years	79	52
	d.14-16 years	13	09
2	Gender		
	a.Male	77	51
	b.Female	73	49
3	Family Structure		
	a.Joint Family	65	43
	b.Nuclear Family	85	57
4	Dietary pattern		
	a.Vegetarian	74	49
	b.Mixed	76	51

The majority of the children 76 (51%) were having a history of mixed dietary pattern and rest 74 (49%) were vegetarian.

Out of 150 children, majority of children having Moderate malnutrition [79(53.5%)], minimum number of them were having severe Malnutrition [4 (2%)], and rest were having Mild malnutrition [63(42.5%)] status. Only 4 (2%) children were found normal.

Table No. 2 Distribution of school children according to their BMI Status

BMI Status	n=150					
	No. of Male Children	%	No. of Female Children	%	Total (M+F)	%
1. No Malnutrition (>18)	00	0	04	0.5	04	2
2. Mild Malnutrition (15-18)	30	39	33	45	63	42.5
3. Moderate Malnutrition (12-15)	47	61	32	44	79	53.5
4. Severe Malnutrition <12	00	0	04	0.5	04	2

Note: Normal= 18<, Mild 15-18, Moderate 12-15, and sever < 12

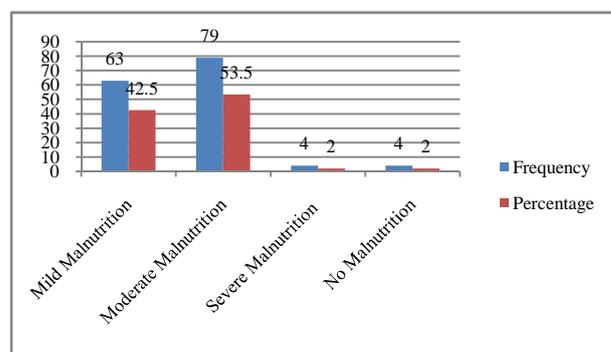


Figure1 Column bar diagram showing Frequency and percentage distribution of types of Malnutrition based on BMI score of primary school children

Table No. 3 Mean, Median, Mode, Range and Standard deviation of BMI score of school children (n=150)

Areas of analysis	Mean	Median	Mode	Standard deviation	Range
BMI Score Male and female children	14.85	15	15.3	1.72	14.41
BMI Score MALE children	14.6	14.7	14.6	1.27	6.2
BMI Score FEMALE children	15.1	14.12	15	2.07	14.41
Difference	0.5	0.05	0.4	0.8	8.21

The study depicts that, there is a significant relationship between Age and family structure with status of malnutrition. Hence the H₀ is rejected in these two cases as the Cal. Chi. Sq. Value is greater than the tabulated value at 0.05 level of significance (Table No. 4).

There is no significant relationship between gender and dietary structure with status of malnutrition. Hence the H₀ is accepted in these two cases as the Cal. Chi. Sq. Value is lesser than the tabulated value at 0.05 level of significance (Table No. 4).

DISCUSSION

Out of 150 students, majority of the children were suffering with malnutrition 146(97.33%). Among them majority of children having Moderate malnutrition [79(53.5%)], minimum number of them were having severe Malnutrition [4 (2%)], and rest were having Mild malnutrition [63(42.5%)] status. Only 4 (2%) children were found normal.

Table No. 4 Association between BMI scores of school children and their socio demographic variables.

Sl. No.	Demographic Variable	Mild MN	Moderate MN	Severe MN	Chi Sq. Cal. V	Tab. Value	df	Significance
1	Age							
	e.05-07 years	5	15	1	13.16	12.59	6	Yes ($< p = 0.05$)
	f.08-10 years	11	25	0				
	g.11-13 years	37	39	3				
h.14-16 years	8	2	0					
2	Gender				5.14	5.99	2	No ($< p = 0.05$)
	c.Male	30	44	0				
	d.Female	33	35	4				
3	Family Structure				6.95	5.99	2	Yes ($< p = 0.05$)
	c.Joint Family	31	30	4				
	d.Nuclear Family	32	50	0				
4	Dietary pattern				4.50	5.99	2	No ($< p = 0.05$)
	c.Vegetarian	34	38	0				
	d.Mixed	29	41	4				

The study results are comparatively same as the study conducted by Izharul Hasan in government urdu high-school Bangalore in 2007 as well as the national statistics of India supports the results as it says 80% malnutrition burden among rural children of various parts of the country. And suggests that 95% of the victims of malnutrition still present in Gujrat tribal area (Times of India; 4; 6; 17/04/2017).

There is a significant relationship between Age and nutrition as the Cal. Chi. Sq. Value is greater than the tabulated value at 0.05 level of significance. According to the universal law as the age advances nutritional requirement increases according to the demands of growing body cells and tissues. Hence the study results shows there is an association between age and nutritional status of school children. Therefore in this case null hypothesis was rejected.

There is a significant relationship between family structure and nutrition as the Cal. Chi. Sq. Value is greater than the tabulated value at 0.05 level of significance. Family structure plays an important role in maintaining the overall growth of the children. In the present study there is an association between family structure and nutrition because each family structure have its own benefits and drawbacks over the growth of the children. If we consider joint family structure then the care givers are available at all the time and children will be met with their daily requirement of nutrition where as in case of nuclear family care givers are not available at all the time hence children may or may not meet the daily requirements. It is suggested by the study results only that who are coming from joint family majority of them are mild malnourished and who are coming from nuclear family majority of them are moderately malnourished.

CONCLUSION

The study concludes that, malnutrition is a burning issue in tribal and rural parts of India. Hence there is an urgent attention is required by the government, parents of school children and school teachers in prevention of malnutrition.

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