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Nursing

A STUDY ON NUTRITIONAL PROBLEMS IN AN ADOLESCENT POPULATION OF KAMRUP DISTRICT, ASSAM.

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ABSTRACT A study was conducted to assess the nutritional problem among 1500 (14 -19 years) adolescents studying in twelve randomly selected Higher Secondary (Govt.) Schools of Kamrup, Assam. Weight and height was measured and BMIs computed to assess nutritional status according to CDC criteria.

Result: Prevalence was 35.58 percent of which 10.06% overweight and 4.86% obese, 15.86 % were risk of underweight and 4.8 % under-weight. Prevalence was 36.16% in females and 34.96% in males. Among rural adolescent prevalence was 34.2 percent and 35.1percent in urban adolescents. Nutritional problem was significantly associated with age (Chi-sq =161.87; df =2;p=0.001), gender (Chi-sq =1.334; df=2; p=0.513), location of school (Chi-sq =6.377; df=2; p=0.041), father's education (Chi-sq =19.303; df=8; p=0.013) and mother's occupation (Chi-sq =18.089; df =8; p=0.021) at 0.05 level of significance.

Conclusion: The study shows the poor nutritional status of adolescent. Prevention should include a multi-level, multi-disciplinary and multi-organizational approach.

KEYWORDS : Obesity, overweight, adolescent, underweight

Introduction

Adolescence is a significant period of human growth and maturation. In India, adolescents (10-19 years) constitute 21.4 percent of the population, comprising one fifth of the total population. Assam is a home to an estimated 6.5 million adolescents, comprising 21.3 percent of the state population.[1]

Adolescents are exposed to under nutrition, micronutrient malnutrition as well as obesity. The aetiology nutritional problem is complex and is of multiple causations. Over-weight and obesity is an escalating health problem in both developed and developing countries. The International Obesity Task Force report[2] showed that 1 in 10 children worldwide are overweight. Overweight and obesity are risk factors for many health problems, regardless of a person's age. Children and adolescents who are overweight and obese, however, face a greater risk of health problems. On the other hand under nutrition affects their ability to learn and work at maximum productivity, increases the risk of poor obstetric outcomes for teen mother. Early detection of nutritional problems through regular survey helps in prompt treatment and prevention of many health problems. Therefore this study was carried out with the objective to assess the nutritional status and determine its association with selected socio demographic variables.

Materials and Methods:

The present study was conducted in the year 2014- 2016 among 1500 adolescents studying in class IX to class XII of twelve randomly selected Higher Secondary (Govt.) Schools under Directorate of Secondary Education, Assam in Kamrup District. Body weight was measured (to the nearest 0.5 kg) with the subject standing motionless on the weighing scale. Height was measured (to the nearest 0.5 cm) with the subject standing in an erect position against a vertical scale (statue stature meter of 2 meter length). Nutritional status was assessed through BMI according to CDC criteria[3]. Data was analyzed using SPSS version 21.

Results:

Section I: Distribution of subjects according to their socio-demographic Characteristics

Out of 1500 adolescent majority i.e. 451 (30.10%) were 14years old, 771 (51.40%) were female, 897 (59.80%) were drawn from urban schools, 1114 (74.27%) from nuclear family, 628 (41.90%) were either single or of first birth order, 478 (31.90%), 1048 (69.90%) were of Hindu religion. Majority mothers i.e. 545 (36.33%) were having middle schooling, majotity fathers i.e. 496 (33.07%) studied higher secondary level, 1116(74.40%) mothers were just house wives and 678 (45.20%) fathers were business man.

Section II: Nutritional problems based on BMI

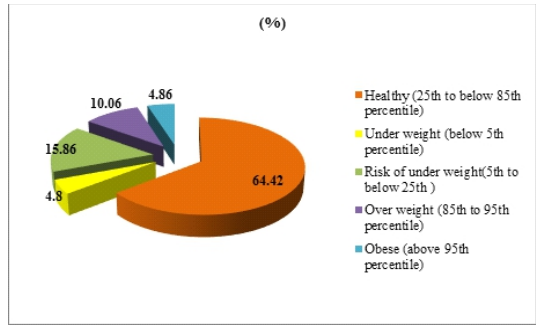

Figure 1: Pie diagram showing percentage distribution of nutritional problem

Finding shows prevalence was 35.58 percent of which 10.06 percent overweight (85th to 95th percentile) and 4.86 percent obese (>95th percentile). On the contrary 15.86 percent were risk of underweight (5th to below 25th percentile) and 4.8 percent were under-weight (below 5th percentile).

Table-1

Gender wise nutritional problem among adolescen

n=1500 (M=729; F=771)

Nutritional problems	Male		Female	
	f	%	f	%
Healthy	474	65.02	492	63.81
Under weight	37	5.07	35	4.53
Risk of under weight	117	16.04	121	15.69
Over weight	63	8.64	88	11.41
Obese	38	5.21	35	4.53
Total	729	100	771	100

n=1500 (M=729; F=771

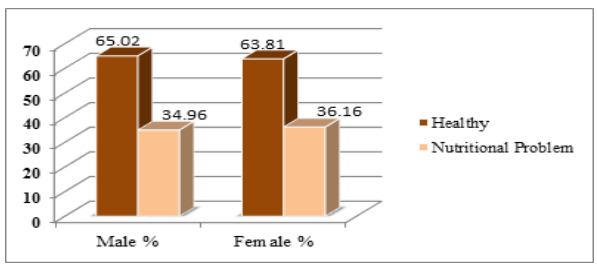

Figure 2: Bar diagram showing gender wise distribution of nutritional problems

Table-1& figure 2 depicts that out of 771 females prevalence was 36.16% of which 121(15.69%) were having risk to under- weight, 35 (4.53%) were underweight, 88(11.41%) were over- weight and 35 (4.53%) were obese. Among the 729 (48.6 %) males prevalence was34.96% of which 117 (16.04%) were risk of under-weight, 37(5.07%) were under weight, 63(8.64%) were found to be over-weight and 38 (5.21%) were obese.

Therefore it infers that under nutrition conditions (21.11%) were more among males, whereas among the females, over nutrition (15.94%)) were found to be higher.

Table- 2
Location wise distribution of nutritional problem
n=1500 (U=897; R=603)

BMI	Urban school		Rural school	
	f	%	f	%
Healthy	582	64.9	384	63.7
Under weight	35	3.9	37	4.1
Risk of under weight	134	14.9	104	17.2
Over weight	96	10.7	55	9.1
Obese	50	5.6	23	3.8
Total	897	100	603	100

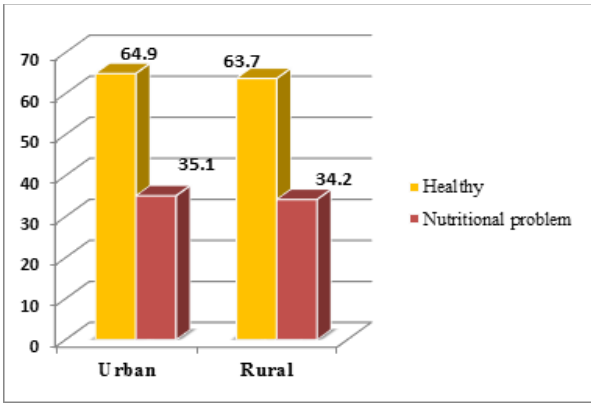

Figure 3: Bar diagram showing location wise percentage distribution of nutritional problems.

Findings in table -2& figure- 3 shows among 897 urban adolescent 35.1percent adolescents were having nutritional problems of which majority i.e134 (14.9%) were in risk of underweight, and 35 (3.9%) were under weight against which 96(10.7%) overweight and 50 (5.6%) were obese. Whereas among rural adolescent prevalence was 34.2 percent of which majority i.e. 104 (17.2%) were in the risk of underweight and 37 (4.1%) were under weight against which overweight 55 (9.1%), and obese 23 (3.8%).

It infers that under-nutrition conditions are more among rural then the urban adolescent whereas over-nutrition conditions are more among urban adolescent then in rural.

Section III: Association Between Nutritional Problems and Selected Variables

Table-3 Association Between Nutritional Problems and Selected Variables
N=1500

Variables	Chi-square	df	p-value
Age Group	161.87	2	0.001**
Gender	1.334	2	0.513
Location of school	6.377	2	0.041*
Type of family	2.033	2	0.362
Birth order	2.812	4	0.590
Religion	5.644	6	0.464
Mother's education	10.504	8	0.231
Father's education	19.303	8	0.013*
Mother's occupation	18.089	8	0.021*
Father's occupation	8.921	8	0.349

S* = SIGNIFICANT AT 0.05, S** = SIGNIFICANT AT 0.01 NS = NOT SIGNIFICANT

Table -3 depicts that nutritional problem was significantly associated with age (Chi-sq =161.87; df =2;p=0.001), gender (Chi-sq =1.334; df=2; p=0.513), location of school (Chi-sq =6.377; df=2; p=0.041), father's education (Chi-sq =19.303; df=8; p=0.013) and mother's occupation (Chi-sq =18.089; df =8; p=0.021) at 0.05 level of significance.

Discussion

Adolescent malnutrition in developing countries is in beginning to receive the attention it deserves. Majority of researchers have advocated Body Mass Index (BMI) as an indicator of nutritional status. Study observed prevalence of nutritional problem was 35.58 percent. Similarly a study found 38 percent in Midnapur of West Bengal[4] 34 percent in Midnapur West Bengal.[5] A higher prevalence rates were found in Wardha (56%)[6], in Ahmedabad (66.9)[7] and in Goa (59.2%)[8].

Present study found 10.06 % overweight (85th to 95th percentile) and 4.86 were obese (>95th percentile). This finding has been supported by many studies. The prevalence of overweight and obesity was 9.1% and 4.1% respectively observed in Belgaum city Karnata9, in Berhampur, Odisha during 2009-11 found 10.4 % overweight and 3.6% obese[10]. Little higher prevalence was reported, where overweight and obesity was 14.9 and 3.8percent respectively in Midnapore town[4], in Bhubaneswar overweight 16.4 percent and obesity 4 percent [11]. Surprisingly no adolescent was overweight or obese in peri urban area of Wardha.[12]

In India, one of the important aims of nutritional research is to focus on the prevalence of under-nutrition among adolescents. In the present study, 15.86 percent were risk of underweight and 4.8 percent were under weight. Markedly higher prevalence of underweight was reported by a good number of studies like 30.21 percent[5], 51.7 percent[12] and 33.3 %.[8]

In the present study, among the male adolescent under nutrition (risk of under-weight=16.04%, underweight= 5.07%) were more, whereas among the females, problems of over nutrition (over weight= 11.41%, obesity =5.21%) were found to be higher. A typical similar nature findings were observed in a study of 1126 males and 905 female school adolescents in Ondo State, Southwest Nigeria where Underweight was more (18.65%) in the males than females (13.48%), however overweight was (7.40%) more in females then (4.44%) in males ($p<0.05$)[13]. Whereas contrast findings were observed, where prevalence of overweight was 14.3percent among boys and 9.2percent among girls, the prevalence of obesity was 2.9 percent in boys and 1.5percent in girls.[14]

Conclusion

Prevalence of nutritional problem was 35.58percent, was higher among urban adolescent (35%) then the rural adolescent (34.2%). Prevalence was higher in females (36.16%) then the males (34.96%) higher among urban then the rural adolescent. A periodical and regular health check-up and multi disciplinary interventions towards their nutrition and health education will improve the nutritional status.

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