

Original Article

IMPACT OF EDUCATIONAL STATUS OF PARENTS ON NUTRITIONAL STATUS OF ADOLESCENT GIRLS-A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Adolescent is a period where significant growth changes occur necessitating optimum nutritional requirement. During adolescence 20% of adult height attained and 50% of adult bone mass gained. Girls deposit twice as much body fat as boys at this time and boys double their lean body mass. As a result nutrition requirement peak in adolescent. Failure to achieve optimum nutrition intake at this time can potentially retard physical growth, intellectual capacity and sexual maturation.

Objective of this study was to study the effects of parental education on nutritional status of the adolescent girl.

Material and Methods: A community based cross sectional study was carried out among 400 randomly selected adolescent girls belonging to makhinagarkhalapar block which is the field practice area of Muzaffarnagar Medical College, Muzaffarnagar (UP). The data was recorded in pre-designed and semi-structured Questionnaire.

Results: The proportion of adolescent girls aged 10-14 years and 15-19 years comprised of 41.2% and 58.8% respectively. Under nutrition was maximum (50%) in adolescent girls whose mothers were illiterate followed by 41% in girls whose mothers were just literate ($p < 0.05$). Similarly the prevalence of under nutrition was maximum (100%) in adolescent girls whose fathers were illiterate.

Conclusion: This study found strong association between the nutritional status of adolescent girls and education of parents. Illiteracy of their parent is the main factor of malnutrition among adolescents.

Keywords: Adolescent girls, malnutrition, parental education.

INTRODUCTION

Adolescence is a period of dramatic growth and development. WHO define adolescence as the period between 10-19 years of age that include pubertal development also. This period is very crucial since these are the formative years in life where major physical, psychological and behavioral changes take place. This is also the period of preparation for undertaking greater responsibilities including healthy responsible parenthood. Nutritional and health needs of the adolescents are also more important because of more requirement for growth spurt and increase in physical activity.¹The main nutritional problems affecting adolescent population are under-nutrition and iron deficiency anemia and in addition preventing these nutrition related chronic disease in adolescents can provide added benefit of prevention of fetal malnutrition.²

The prevalence of under nutrition is higher among adolescent boys in most of the developing countries as compared to girls except in India. In few developing countries e.g. Benin, Cameroon and Egypt the nutritional status of boys showed more stunting than girls. In India on the other hand stunting was far more prevalent among girls than boys (45% compared to 20%) which is attributed to gender bias in south Asia.³

Besides, various socio-demographic factors which play equally important role in the causation of malnutrition in regard to adolescent girls such as poverty, illiteracy, ignorance, presence of infectious diseases, the parents education is also important factor. The family therefore plays an important role in shaping the food habits, and these habits are passed from one generation to another.⁴ No such study in the Muzaffarnagar district had been carried out earlier on this issue in past. Therefore it is crucial to study the effects

of parental education on health and nutritional status of the adolescent girls in Muzaffarnagar district. This was the prime reason for selecting this research topic.

MATERIAL AND METHODS

Research question: To study the effects of parental education on nutritional status of the adolescent girl.

Exclusion Criteria in study: Dietary intake, Clinical profile and other factors affecting nutritional status were excluded from this study.

Study duration: The data for this study was collected from September 2013 to December 2013.

Place of Study: The present study was conducted in the population registered at Urban Health Training Centre, Khalapar which is the Field Practice area of Department of Community Medicine, Muzaffarnagar Medical College, Muzaffarnagar.

Sampling & Data Collection technique: For calculating the sample size because of non availability of data about prevalence of malnutrition in adolescent girls and varying prevalence of different nutritional disorder, the average prevalence of malnutrition is being taken as 50% to calculate the sample size for the study. Therefore by taking prevalence of malnutrition as 50% for confidence level 95% with a relative precision of 10%, an appropriate sample of size n for study can be obtained by following formula $n = 4PQ/L^2$.

In order to have an effective completion of study, a house to house survey was done from locality to locality so as to cover the desired sample. During home visits, demographic profile of the family was taken along with the interview & examination of eligible persons i.e. adolescent girls aged 10-19 years. All adolescent girls belonging to alternate family were interviewed using oral questionnaire method. If any of the adolescent girls in the family was absent or hostile, during the time of study, the girl in the next family was interviewed. For proper response the heads of the families were explained in detail the purpose of the study.

Detailed information was collected on a predesigned & pretested proforma about socio-demographic characteristics & contributory factors responsible for nutritional status by oral questionnaire methods supplemented by physical examination which includes weight, height and BMI.

Data Analysis technique: Data was entered into SPSS Version 19.0 and analyzed by using appropriate tests like Chi square test, was applied to find out significant association between independent and dependent variables. Results were expressed in proportions.

RESULTS

As shown in table 1, 41.2% girls were in the age group 10-14 and rest 58.8% were 15-19 year old.

Table-1 shows that in 10-14 year age group ,BMI was found < 18.5 in 15.8% while in 15-19 year age group 24.7% girls were suffering from under nutrition and this difference in prevalence of under nutrition in relation to age was statistically significant (P<0.05).

Table-1: Prevalence of under-nutrition in different age strata's in sampled population:

Age in groups (Yrs.)	No. (%)	BMI < 18.5 (%)
10-14	165 (41.2)	26 (15.8)
15-19	235 (58.8)	58 (24.7)
Total	400 (100)	84 (21.0)

Chi square=4.65; df=1; P<0.05

Literacy Status of parents: As shown in Table-2, maximum girls were educated up to primary class (28.5%) followed by middle class (21.8%), high school (19%) and Intermediate (18.8%). 8.6% of girls were graduate. 1.5% girls were illiterate and 1.8% were just literate.

Table-2 shows that prevalence of under nutrition was maximum (50%) in illiterate girls, followed by girls who are just literate (42.9%). 30.7% under nutrition was found in girls who were educated till primary , 23% in girls who were educated up to middle ,13.2% under nutrition was found in girls who were educated till high school and least prevalence of under nutrition was found in girls who were graduate (8.6%) and this difference in prevalence of under nutrition in relation to educational status of girls .

Table-2: Nutritional status of adolescent girls in relation to Literacy status of their parents

Educational status of Parents	Population (%)	BMI kg/m ² (%)		
		<18.5	18.5-24.9	>25
Illiterate	6 (1.5)	3 (50.0)	3 (50.0)	0 (0.0)
Just literate	7 (1.8)	3 (42.9)	4 (57.0)	0 (0.0)
Primary	114 (28.5)	35 (30.7)	78 (68.4)	1 (0.9)
Middle	87 (21.8)	20 (23.0)	62 (71.3)	5 (5.7)
High School	76 (19.0)	10 (13.2)	60 (78.9)	6 (7.9)
Intermediate	75 (18.6)	9 (12.0)	59 (78.7)	7 (9.3)
Graduate	35 (8.6)	4 (11.4)	22 (62.9)	9 (25.7)
Total	400 (100)	84 (21.0)	288 (72.0)	28 (7.0)

Mother's education: As shown in the Table-3, 1.5% of mothers were illiterate, 9.8% were just literate, 22% were educated till primary, 28.3% were educated till middle, 27.3% were educated till high school, 9% were educated till intermediate and 2.3% were educated till graduate and above.

Table-3 shows that prevalence of under nutrition was maximum (50%) in adolescent girls whose mothers are illiterate,41% in girls whose mothers are just illiterate, followed by primary (26.1%), middle (17.7%), high school (15.6%) and 13.8% and 0% in intermediate and graduate respectively. The difference in prevalence of under nutrition in relation with education status of mother was found significant (p<0.05).

Table-3: Nutritional status of adolescent girls in relation to their mothers' education

Mothers Education	Population (%)	BMI kg/m ² (%)		
		<18.5	18.5-24.9	>25
Illiterate	6 (1.5)	3 (50.0)	3 (50.0)	0 (0.0)
Just literate	39 (9.8)	16 (41.0)	23 (58.9)	0 (0.0)
Primary	88 (22.0)	23 (26.1)	63 (71.7)	2 (2.3)
Middle	113 (28.3)	20 (17.7)	88 (77.9)	5 (4.4)
High School	109 (27.3)	17 (15.6)	84 (77.1)	8 (7.3)
Intermediate ¹	36 (9.0)	5 (13.8)	21 (58.3)	10 (27.8)
Graduate & above ²	9 (2.3)	0 (0.0)	6 (66.7)	3 (33.3)
Total	400 (100)	84 (21.0)	288 (72.0)	28 (7.0)

$\chi^2= 19.18$; df 5; $P<0.05$, for chi square purpose 1 and 2 have been merged in one.

Fathers Education: As shown in Table-4, 1.5% fathers were illiterate, 9.8% were just literate, 22% were educated till primary, 28.3% were educated till middle, 27.3% were educated till high school, 9% were educated till intermediate and 2.3% were graduate and above.

Table-4 shows that prevalence of under nutrition was maximum (100%) in adolescent girls whose fathers were illiterate, 62.5% in girls whose fathers were just illiterate, followed by primary (42.6%), middle (28.8%), high school (20.9% and 11.6% and 5.9% in intermediate and graduate respectively. The difference in prevalence of under nutrition in relation with education status of mother was found to be significant ($p<.001$).

Table-4: Nutritional status of adolescent girls in relation to their fathers' education

Fathers Education	Population (%)	BMI kg/m ² (%)		
		<18.5	18.5-24.9	>25
Illiterate ¹	1 (1.5)	1 (100)	0 (50.0)	0 (0.0)
Just literate ²	8 (9.8)	5 (62.5)	3 (58.9)	0 (0.0)
Primary ³	28 (22.0)	12 (42.6)	15 (71.7)	1 (3.6)
Middle	93 (28.3)	24 (28.8)	66 (77.9)	3 (3.2)
High School	124 (27.3)	26 (20.9)	90 (77.1)	8 (6.5)
Intermediate ⁴	129 (9.0)	15 (11.6)	103 (58.3)	11 (8.5)
Graduate and above ⁵	17 (2.3)	1 (5.9)	11 (66.7)	5 (29.4)
Total	400 (100)	84 (21.0)	288 (72.0)	28 (7.0)

$\chi^2=27.22$; df 3; $P<0.001$, for chi square purpose 1, 2 and 3 have been merged in one, 4 and 5 merged in another one.

DISCUSSION

In the present cross-sectional study all 486 adolescent girls were enumerated amongst whom 400 (82.3%) were covered in the study by house to house visit and rest 17.7% could not be covered due to either non availability or non-cooperative attitude. The proportion of adolescent girls aged 10-14 years and 15-19 years were 41.2% and 58.8% respectively in the

present study as compared to 51.8% and 48.2% reported in the study by Rita et al (2002) in the same type of community.⁵

Majority of researchers have advocated Body Mass Index (BMI) as an indicator of nutritional status of adolescents. According to BMI overall prevalence of under-nutrition (BMI<18.5) in the present study was observed as 21% where as a higher prevalence was reported by Anand et al (1999) [30.1%] in Haryana.⁶

Only 7% subjects were found overweight (BMI >25) in present study and this was in contrast to prevalence of obesity (3.1%) found in study by Kapoor and Aneja (1992) among girls belonging to high socioeconomic strata of Delhi.⁷

In the present study, the proportion of girls having BMI < 18.5 (under nutrition) was statistically significant ($P<0.05$) with advancing age being 15.8% in age group 10-14 years and 24.7% in 15-19 year age group which is similar with the finding of Acharya et al (2006) and Mukhopadhyay et al (1998).^{8,9}

In the present study, 28.5% of adolescent girls were educated up to primary class which is comparable to 99.0% reported by Rita et al (2002) & (Census, 2001) and this can be attributed to better educational facilities and opportunities in Western U.P. Saibaba et al (2002) also reported 13.2% illiterates, 38% primary and 44% high school education.

In the present study under-nutrition was statistically significantly in illiterate girls (50.0%), followed by girls who were just literate (42.9%), and further decreased with increasing literacy with the least prevalence of 11.4% in those girls who were graduate. This may be due to better awareness regarding different preventive measures for a healthy living with increasing literacy.

In the present study prevalence of under nutrition was maximum (50.0%) in adolescent girls whose mothers were illiterate followed by 41.0% in girls whose mothers were just literate and decreased gradually with increasing literacy status of mothers being nil with mothers education up to intermediate and above ($P<0.001$), where as Chaudhary et al found that educational status of either mother or husband showed no significant association with nutritional status of adolescent girls.¹² A significant association was also observed between the nutritional status of adolescents and the mother's literacy level and family size in the study of Davey S et al (2012), Bhattacharyya H et al (2013) & Joshi MS et al (2014).^{13,14,15}

Similarly the prevalence of under nutrition in adolescent girl in the present study was maximum (100.0%) in adolescent girls whose fathers were illiterate and decreased gradually with increasing fathers education being maximum (5.9%) with fathers education up to graduate level ($P<0.001$). The results are in accordance with Chaudhary et al¹² observing a significant difference in nutritional status of adolescent girls with varying level of father's education.

CONCLUSION

Since, it has been seen from the present study that health of an individual is directly related to the education of their parents, so this appears to be an important issue in nutritional status of Adolescent girls in Muzzafarnagar (UP) and this can be further substantiated from further studies in future.

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