



A CROSS-SECTIONAL STUDY TO ASSESS THE IMPACT OF PARENT'S EDUCATION ON NUTRITIONAL STATUS OF SCHOOL GOING ADOLESCENTS IN KISHANGANJ, BIHAR

Community Medicine

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ABSTRACT

Background: Adolescent nutritional problems are a double burden of undernutrition and overnutrition. Overnutrition among adolescents is an emerging problem of today's times leading to several implications on cardio-metabolic conditions, leading to chronic non-communicable disease. **Objective:** To assess the impact of educational status of parents on nutritional status of school going adolescents. **Methods:** This cross-sectional study was conducted among 209 adolescent girls and boys belonging to age group 10-19 years studying in schools located in Kishanganj, Bihar from October 2018 to September 2019. Data was collected, using a preformed, pretested questionnaire containing socio-demographic variables and anthropometric measurements. **Results:** Prevalence of overweight 16.28%, obesity 2.39%, thinness 32.09% and 49.24% were found normal according to BMI category. Percentage of overweight and obesity was more in middle and late adolescents. Regarding father's education, 11% had professional degree, 32.50% intermediate and 2% illiterate. Whereas 32.67% mothers have completed their Intermediate, 11.37% illiterate, 0.99% professional degree and 2.97% possessing post-graduate degree. Thinness was higher in early adolescents as well as among students whose mother's education was upto high school and father's education was of middle school. Overnutrition was higher where mother's and father's education was intermediate and above. **Conclusion:** To prevent nutrition related disorders from early age, it becomes necessary to educate the community on the aspects of healthy food habits and desired lifestyles as a family education. This shows the need for a balanced and sensitive approach to address the economic and nutrition transitions to successfully tackle this double burden paradox in India.

KEYWORDS

Overnutrition, School Adolescent, Parent's education

INTRODUCTION

Adolescence is one of the most rapid phases of human development. Most of the habits acquired during adolescence usually last for lifetime. Adolescence is a period when they demand independence yet are mostly dependent, a period when maximum hostility is shown to the parents, but they want to be loved and cared for, a period of maximum rebellion showed, yet want to be the pet baby of their parents. Change in lifestyle, including food habits are often more obvious among urban adolescents.^[1] In developing countries, inadequate food intake, improper feeding practices, mal-distribution of food within family, improper cooking habit, excess intake of fast food/ junk food, underlying diseases and low socio-economic condition affects the nutritional status of adolescents.^[2,3] Among the different determinants of nutritional status, parent's education is perhaps the next most vital factor after the socio-economic status. A literate mother uses scarce resources in a better way for the child's welfare than an illiterate mother with higher resources does.^[4] Basic multivariate analysis suggests that, especially in developing countries, maternal education has stronger child health and nutritional associations than paternal education.^[5-7] Therefore, it becomes extremely important to know the association between nutritional status of school going adolescents and parent's educational status with the following objectives:

- The association between mother's education and the nutritional status of adolescents.
- The association between father's education and the nutritional status of adolescents.

METHODS

A cross-sectional study was carried out in higher secondary schools of Kishanganj, Bihar from October 2018 to September 2019. Study included adolescent girls and boys belonging to age group 10-19 years through systemic random sampling.

Study instruments used were pre-designed, pre-tested, semi-structured questionnaire (In English Language), digital weighing machine (adult), portable anthropometric rod and measuring tape.

Data collection procedure

The investigators of this study informed the individuals to participate in the study. The participants were told about the purpose of conducting the study prior to the initiation of the enrolment process. The responses were collected personally by the investigators through interview technique and recorded in the master data sheet. Strict confidentiality of the data was ensured

to all the participants and will not be divulged or mis-utilised. Then verbal informed consent was taken from each participant individually prior to data collection. Behaviour change communication sessions were taken by the investigators with the participants and their caregivers to increase their awareness and to reduce wrong ideas in individual counselling in individual and group sessions based on the data collected from the study.

The study included students who attended the school on the day of study and those who gave consent for participation in the study. Physically challenged or seriously ill students, married/ pregnant girl or two subjects from the same family were excluded from the study.

Statistical analysis used

After data collection, it was entered in MS Excel spread sheet. Tables were created by excel pivot table function and also depicted as percentage. Relationship between socio-demographic and characteristics with nutritional status were calculated by using Chi-square tests with, p-value < 0.05 considered as significant with 95% confidence interval.

RESULTS

In the present study 209 school going adolescents participated. Study participants were almost equally distributed on the basis of their gender, i.e; 50.24% and 49.76% in boys and girls respectively. One-fourth of the study participants (25.84%) fall under early adolescent category and majority (53.59%) of the students were in middle adolescent age group.

Table 1. Age-wise distribution of study subjects on the basis of BMI for age Z score category according to WHO classification (n=209) The difference was statistically significant (p-value=0.00001)

BMI	10-13yr No. (%)	14-16yr No. (%)	17-19yr No. (%)	Total No. (%)	Chi-square	p-value
Thinness	26 (38.80)	37 (55.23)	04 (5.97)	67 (32.09)	47.1895	0.00001
Normal	22 (21.36)	59 (57.28)	22 (21.36)	103 (49.24)		
Over-weight	05 (14.71)	13 (38.23)	16 (47.06)	34 (16.28)		
Obese	01 (20.00)	03 (60.00)	01 (20.00)	05 (2.39)		
Total	54 (25.84)	112 (53.58)	43 (20.58)	209 (100)		

Table 2. Distribution of Educational status of Father & Mother of study population (n=200 & n=202)

Educational status	Father		Mother	
	Number	Percentage (%)	Number	Percentage (%)
Illiterate	04	2.00	23	11.37
Primary school	09	4.50	20	9.90
Middle school	18	9.00	21	10.39
High school	29	14.50	52	25.74
Intermediate	65	32.50	66	32.67
Graduate	42	21.00	12	5.97
Post-graduate	22	11.00	06	2.97
Professional	11	5.50	02	0.99
Total	200	100	202	100

Table 3. Distribution of study subjects according to BMI for age and father's education (n=200)

Father's education	BMI for age					Chi-square	p-value
	Thinness No./ (%)	Normal No./ (%)	Over-Weight No./ (%)	Obese No./ (%)	Total No./ (%)		
Illiterate	01 (0.5)	02 (01)	01 (0.5)	00	04 (2)	48.0853	<0.0001
Primary school	03 (1.5)	03 (1.5)	01 (0.5)	02 (1)	09 (4.5)		
Middle school	27 (13.5)	04 (02)	05 (2.5)	02 (01)	38 (19)		
High school	09 (4.5)	11 (5.5)	06 (03)	03 (1.5)	29 (14.5)		
Intermediate & above	18 (09)	64 (32)	32 (16)	06 (03)	120 (60)		
Total	58	84	45	13	200		

Table 4. Distribution of study subjects according to BMI for age and mother's education (n=202) In both the distribution (BMI of study subjects and parent's education), the difference was statistically significant (p value <0.05)

Mother's education	BMI for age					Chi-square	p-value
	Thinness No./ (%)	Normal No./ (%)	Over-Weight No./ (%)	Obese No./ (%)	Total No./ (%)		
Illiterate	10 (4.95)	12 (5.94)	01 (0.49)	00	23 (11.38)	66.5711	0.00001
Primary school	07 (3.46)	09 (4.45)	02 (0.99)	02 (0.99)	20 (9.90)		
Middle school	11 (5.45)	07 (3.46)	03 (1.48)	00	21 (10.39)		
High school	35 (17.32)	10 (4.95)	06 (2.97)	01 (0.49)	52 (25.74)		
Intermediate & above	04 (1.98)	58 (28.71)	22 (10.89)	02 (0.99)	86 (42.5)		
Total	67	96	34	05	202		

DISCUSSION

Adolescence is a period of rapid physical growth requiring adequate nutrient intake to meet the growth requirement. In this study, about one-third (32.09%) of the total adolescent were thin, as per BMI for age Z score category, which was nearly similar in a study reported by Srivastav S, et al.^[9] showing 30.5% thin adolescents. Deshmukh et al. reported 53.00% of thinness, which is much higher than present study.^[9] In this study, overall prevalence of over-nutrition (overweight 16.28% + obesity 2.39%) among adolescent students was 18.67%, similar to a study conducted by Mehta et al. and Sood et al., where the prevalence of overweight was 15.20% and 13.1% respectively.^[10,11] High percentage of overweight and obese adolescents (26.3% and 14.6% respectively), was seen by Alok P, et al.^[12] In contrast to the present study, the prevalence of overnutrition was very less (3.1%) in a study conducted in Bankura, West Bengal,^[13] which was somewhat similar to a study conducted in North India, where

overweight and obesity was found to be 5.9% and 2.7% respectively.^[14]

The prevalence of overweight increased from 9.7 percent prior to 2001 to 13.9 percent in studies reported after 2010. The combined trend also followed a similar pattern increasing from 15.9% before 2001 to 16.3% from 2001-2005. The value then increased to 17.4% in the 2006-2010 period, finally reaching 19.3% in studies reported after 2010.^[15] Hence, there was a trend of increase in overweight and obesity among children/adolescents in India. So, it is understood that nowadays, prevalence of overnutrition is becoming a major concern in adolescent age group, which if not tackled now, can cause a great threat to the health of an individual as a whole.

Regarding the educational status, it was found that more than three-fourth of the student's father had completed their education upto intermediate, out of which, 5.50% of them had professional degree and 11.00% had post-graduation qualification. Almost similar finding was seen in a study conducted in West Bengal by Das DK et al.^[16] where 77.60% of fathers of the study subjects were literate. Less than half of the total mothers (32.67%) had completed their education upto intermediate and 11.37% mothers were illiterate.

STRENGTHS OF THE STUDY

This is a novel study on under as well as over-nutrition among adolescents in eastern most district of Bihar. Standard methods like WHO-developed BMI age charts were used to assess the nutritional status. The outcome of the study has helped us to organise behaviour change communication and teaching modules for sustainable changes in cognitive domain of adolescents with over nutrition and their parents.

LIMITATIONS OF THE STUDY

Limitations often arise in a scientific study. However attempts were made to reduce as far as possible. The following were some limitations, like the small sample size. Socioeconomic status of the students could not be studied directly since most of the students might not provide relevant details. Family members could not be interviewed thoroughly because the study was carried out in the schools.

FUTURE DIRECTIONS OF STUDY

The researcher of this study feels that similar studies in different locations in other districts are required with a larger sample size to make the results truly representative of our state for which we are planning for funding.

CONCLUSION

This study showed high prevalence of overnutrition among school going adolescents. Even though the prevalence of overnutrition (overweight and obesity) has received much consideration in the recent years, there is a scarcity of data in India related to this. This study revealed that there is significant association between BMI of the adolescents and educational status of their parent's. There is a need to educate and create awareness among adolescent students and their parents through school health programmes at individual as well as at the community level.

RECOMMENDATIONS

Measures which can be implemented in order to improve the nutritional status of school going adolescents includes, mass media support by restricting programmes which spoil their behavior and diet pattern, promote physical activity, regular health check-ups in schools and organize parent teacher meetings periodically regarding health education of the students for a better health future generation.

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CONFLICT OF INTEREST

None

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