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RESEARCH ARTICLE

DIETARY PATTERN OF COLLEGE GOING ADOLESCENTS (17-19 YEARS) IN URBAN AREA OF BELAGAVI

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ABSTRACT

Introduction: In India, poor eating habits are a major public health concern among college students who experience transition into university life, during which they are exposed to stress and lack of time.

Objective: To assess the dietary pattern among college going adolescents.

Methodology: Cross-sectional study conducted among 400 college going adolescents (17-19 years) residing in urban area of Belagavi. Diet (consumption pattern), frequency of meals, type of meal, vegetables and fruits consumption, daily water intake, consumption of fast food, etc. were assessed using pre-designed and pre-tested questionnaire.

Results: Mean calorie consumption among boys was 1472 ± 417 Kcal and in girls was 1360 ± 380 Kcal. 45.5% of boys and 51.5% of girls were underweight. Majority had regular meals and breakfast (72% & 80.8% respectively). 46.8% consumed fruits less than three times per week, 58% had fried food twice or more per week and 40.5% consumed less than 2 liters of water a day.

Conclusions: Most of the students in this study had healthy eating habits except in their consumption of fruits, water intake and consumption of fried food. A study of this type will help to provide nutrition education on healthy food habits and life styles which will help college students bridge the gap between knowledge and practice of dietary pattern.

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INTRODUCTION

World Health Organization has defined adolescence as a period between 10-19 years.¹ The current population of adolescents in India is 253.2 million, which comprises of 21 % of worlds total population.² Adolescence is a period of transition from childhood to adulthood. These are formative years during which maximum amount of physical, psychological and behavioral changes take place. Rapid changes in physical growth and psychosocial development have placed these young adults in nutritionally vulnerable groups with poor eating habits that fail to meet essential dietary requirements.³ Many college going students still fall within the adolescent age group and show some common unhealthy eating patterns such as meal skipping, eating away from home, snacking and fast food consumption.⁴

In present India due to increased urbanization and various other factors, there is a drastic change in the dietary patterns of college students and young adults. Poor eating habits is a major public health concern among college students who experience transition into university life, during which they are exposed to stress and lack of time.⁵ They adopt unhealthy eating habits mainly because of reduced affordability and accessibility of

healthy diet on the premises and the presence of an abundance of surrounding fast food outlets. These factors also pose a barrier against embracing healthy behavior and may lead to change in eating habits and substance abuse.⁶ Detrimental habits picked up during this age generally persist in adult life. Dietary patterns developed during adolescence may contribute to obesity and eating disorders and may increase the risk for several chronic diseases later in life.⁷

Health and nutrition of adolescents will affect the health and survival of future generations. Results of this study may help to create a groundwork for the possibility of forming different interventional programs on promoting the advantages of eating healthy and maintaining a healthy lifestyle.

Despite the importance of nutrition during adolescence, not enough is known about the eating behaviors of young people. In the view of the above facts, the present study was planned to study dietary pattern among urban adolescents.

Objective of The Study

1. To assess the dietary pattern of college going adolescents.

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MATERIALS AND METHODS

Source of data: College going adolescents (17-19) years residing in urban area of Belagavi.

Study Design & Period: Cross sectional study over a period from August 2014 to September 2014.

Study Population: 400 college-going adolescents studying in S.G. Balekundri Institute of Technology College, an engineering college in urban area of Belagavi. 200 boys and 200 girls were selected randomly for the study by simple random sampling method.

Method of collection of data: Data was collected by interviewing the study participants using predesigned and pretested questionnaires in the college. Data regarding the diet, food habits and food consumption pattern was collected from college students of S.G. Balekundri Institute of Technology College, an engineering college in Belagavi. After permission from the principal and lecturers, students were approached in the classroom after their lectures. They were asked to participate in this study voluntarily. Informed written consent and assent were taken from each participant.

Study variables

1. Socio-demographic characteristics - age, gender, education level, marital status, living circumstances, Body mass index (BMI) and lifestyle: such as smoking, alcohol intake and exercise.
2. Diet, consumption pattern, frequency of meals, type of meal, vegetables and fruits consumption, daily water intake, consumption of fast food, etc.

Inclusion criteria: Only adolescents (17-19 years) of age residing in urban area and studying in S.G. Balekundri Institute of Technology College, an engineering college in Belagavi.

Exclusion criteria: Adolescents less than 17 years of age. College students of other colleges.

Tools for study: pre-tested and pre-designed questionnaire.

Data Analysis: Data was coded & entered into Microsoft excel software and statistical analysis was done using percentages, proportions and chi square test.

Ethical clearance was obtained from Institutional Ethics Committee of JNMC, Belagavi.

RESULTS

In the present study majority of students, 226 (70.5%) were aged 19 years of which 127 (63.5%) were boys and 99 (49.5%) were girls. Most of them were Hindus (84.4%) while Muslim and Christian constituted 10% and 0.8% respectively. 53.5% consumed a vegetarian diet and 46.5% followed a non-vegetarian along with a vegetarian diet. Regarding their mother's education level, 53% had collegiate education and 41.7% had high school or less. Regarding father's education, a

majority had tertiary education (75.6%) and 22.1% had high school or less. Most of the mothers were not working (83.8%). Most of the students, that is, 316 (79%) belonged to nuclear family. Majority had denied smoking (94.7%) and alcohol consumption (92.5%) (Table 1).

Table 1 Socio-demographic characteristics of respondents

Characteristics		Number	Percentage
Gender	Boys	200	50%
	Girls	200	50%
Age	17	88	22%
	18	86	21.5%
	19	226	56.5%
Religion	Hindu	338	84.4%
	Muslim	40	10%
	Christian	3	0.8%
	Others	19	4.8%
Diet	Vegetarian	214	53.5%
	Mixed	186	46.5%
Mother's education level	Illiterate	21	5.3%
	Primary	44	11%
	High school	123	30.7%
	Collegiate (PUC, Degree, PG)	212	53%
Father's education level	Illiterate	9	2.3%
	Primary	23	5.8%
	High school	65	16.3%
	Collegiate (PUC, Degree, PG)	302	75.6%
Mother working	(NO)	335	83.8%
	(YES)	370	92.5%
Type of family	Nuclear	316	79%
	Joint	84	21%
Smoking	(NO)	379	94.7%
Alcohol consumption	(NO)	370	92.5%

Table 2 Distribution of study participants according to age and sex

Age	BOYS	GIRLS	Total
17	47(23.5)	41(20.5)	88(22)
18	26(13)	60(30)	86(21.5)
19	127(63.5)	99(49.5)	226(56.5)
Total	200	200	400

$\chi^2=17.320, df=2, p<0.001$

The age distribution of the adolescent boys and girls showed that more than half of them belonged to the age-group of 19 years. About 22% were of 17 years, and the rest belonged to 18 years. The mean age of boys was 18.4 ± 0.84 years and girls' was 18.3 ± 0.78 years. This difference in distribution of age among boys and girls was found to be statistically significant $p < 0.001$ (Table 2) Of the total study participants 39.2% of them had a normal BMI, 48.5% were under weight, 6.5% were overweight and 5.8% were obese. This difference in BMI was found to be statistically significant among boys and girls. $p=0.002$ (Table 3).

Table 3 Distribution of study participants based on BMI

BODY MASS INDEX	BOYS Number (%)	GIRLS Number (%)	total
Underweight	91(45.5)	103(51.5)	194(48.5)
Normal weight	72(36)	85(42.5)	157(39.2)
overweight	19(9.5)	7(3.5)	26(6.5)
Obese	18(9)	5(2.5)	23(5.8)
total	200	200	400

$\chi^2=14.705, df=3, p=0.002$

Out of the total, 27.5% of boys and 32% of girls belonged to Class I socioeconomic status, 21.5% of boys and 35.5% of girls to Class II, 31% of boys and 21% of girls to Class III, 19.5% of

boys and 10.5% to Class IV and only 0.5% of boys and one percent of girls belonged to Class V. This difference in socioeconomic status among boys and girls was found to be statistically significant $p=0.002$ (Table 4).

Table 4 Distribution of study participants according to socioeconomic status

Socioeconomic Status	Boys Number (%)	Girls Number (%)	Total
Class 1	55(27.5)	64(32)	119(29.75)
Class 2	43(21.5)	71(35.5)	114(28.5)
Class 3	62(31)	42(21)	104(26)
Class 4	39(19.5)	21(10.5)	60(15)
Class 5	1(0.5)	2(1)	3(0.75)
total	200	200	400

$\chi^2=17.137, df=4, p=0.002$

Mean calorie intake among boys was found to be 1472 ± 417 Kcal with range being 340 - 2945 Kcal. Mean calorie intake among girls was found to be 1360 ± 380 Kcal with range being 526 - 2885 Kcal. This difference in calorie intake among boys and girls was found to be statistically significant $p=0.006$. (Table 5)

Table 5 Distribution of Mean calorie intake according among study participants

Gender	Mean	Range
male	1472±417	340-2945
female	1360±380	526-2885
both	1416	402-2945

$p=0.006$

Nearly 80.8% of adolescents had meals regularly. About 74.5% had snacks less than three times a week and 25.5% took snacks three or more times per week. Almost 72.7% of study participants consumed fruits less than three times a week; the rest 27.3% ate fruits three times or more. Out of the total, 20% had fried food three or more times a week while majority, that is, 80% of them took it less than three times (Table 6).

Table 6: Consumption pattern of diet among boys and girls

Item	Daily Number (%)	1-2times/week Number (%)	3-4time /week Number (%)	Never Number (%)	Total
Breakfast	323(80.8)	25(6.3)	47(11.8)	5(1.2)	400
Snacks	102(25.5)	155(38.8)	102(25.5)	41(10.2)	400
Fruits	69(17.3)	187(46.8)	109(27.3)	35(8.6)	400
Fried food	50(12.5)	235(58)	80(20)	35(9.5)	400
Milk	100(25)	123(30.7)	49(12.3)	128(32)	400

The majority (65.5%) had fast food often. Almost 40.5% of them consumed less than two liters water intake daily

DISCUSSION

Diet plays a very important role in growth and development of adolescents, during which the development of healthy eating habits is of supreme importance. There is a dual burden of under-nutrition and over-nutrition in this age-group.

In this study, 127 (63.5%) were boys and 99 (49.5%) were girls who were aged 19 years (56.5%). Where as a study conducted in Baroda, showed that 52% were girls and 48% were boys and half of them belonged to age group of 14-16 years.⁸ In the present study fathers educational level was better than mother and more than half of the mothers were not working. A majority had denied smoking (94.7%) and alcohol consumption

(92.5%). These findings were similar to studies conducted in Malaysia on dietary pattern in adolescents.^{4, 8}

In this study, majority of respondents had meals regularly. This finding was comparatively similar to that reported by a Chinese study in which 83.6% of adolescents consumed meals regularly.⁹ Another study reported that 61.4% of Lebanese adolescents had regular meals daily.¹⁰ Regular meal consumption among adolescents is important for adequate energy intake to overcome fatigue due to a busy (daily) learning schedule.¹¹

The frequent consumption of snacks and light meals is a recognizable aspect of teenage food behavior. Surprisingly, our study found that only 25.5% of respondents ate snacks at least three times per week. This finding was comparatively lower when compared to studies from different countries, which found greater proportion of Syrian adolescents (53.0%) and Lebanon students (53.2%) consumed snacks regularly.^{10, 12}

Our study has also found that 27.3% of respondents consumed fruits at least three times per week similar to study in Syria.¹⁰ The typical university student diet is usually high in fat.¹³ Students often select fast food due to its palatability, availability and convenience.¹⁰ Our study has found that 65.5% of respondents consumed fast food often which is very high when compared to other studies conducted in Malaysia which reported that only 4.7% visited fast food frequently.¹⁴

In contrast, another study conducted in Malaysia¹⁵ reported that 60-70% of primary school students were fond of fast food. However in our study, only 20% had fried food three or more times a week while majority that is 80% of them took it less than three times which was in line with that found by a previous study.¹⁰

CONCLUSION

In general, most of the students in this study had healthy eating habits except in their consumption of fruits, water, and fried food. Study of this type will help to identify dietary pattern among college going adolescents so as to provide them nutrition education on healthy food habits and life styles and importance of adherence to traditional food which will help them to bridge the gap between knowledge and practice of dietary pattern and help in improving overall health and nutritional status.

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