Dietary habits and family correlates whether family has any role in shaping the dietary habits of adolescents? A school based cross-sectional study from Mangaluru, Karnataka State, India

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ABSTRACT

Background: Adolescence is widely defined as the time in life when the developing individual attains the skills and attributes necessary to become a productive and reproductive adult. Objective: to study the dietary habits of school going adolescents and role of family in shaping the habits. Material and methods: This Cross-sectional study was conducted in Mangalore city of Dakshina Kannada also known as South Canara a coastal district situated in the southern part of Karnataka state for a period of two years from November 2014 to September 2016. Adolescents aged 10 to 19 years studying in grade VII to grade X of two selected schools and their parents/guardians. Results: Majority of the adolescents viz., 63.9%, 90.0%, and 68.7% had inadequate intake of proportion of fruits, green leafy vegetables and junk foods per day during the past 7 days respectively. Number of siblings in family, father literacy and religion were the socio-demographic variables found to have statistically significant association with fruit intake with p<0.05. Conclusions: This study throws light on the existence of various health needs of the adolescents and should be addressed by their parents and they should be offered counseling services.

Key Words: Dietary habits, adolescents, fruits, green leafy vegetables, junk foods

INTRODUCTION

World Health Organization identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, adolescents individuals are precious human resources in every country and are the future of the society. It is an age of opportunity for children and a pivotal time to build on their development in the first decade of life, to help them navigate risk and vulnerabilities and to set them on the path to fulfilling their potential.It is a phase of rapid growth and development during which physical, physiological and behavioral changes occur.¹

The world is home to 1.2 billion individuals aged 10-19years.²This period is divided into 2 categories, early adolescence (10-14years) and late adolescence (15-19years).³

India has the largest adolescent population in the world.⁴According to 2011 census data, every fifth person in India is an adolescent and they constitute nearly one-fifth (20.8 %) of India’s total population. Of the total population, 10.9% belong to the 10-14years age group & nearly 9.9% are in 15-19years age group.⁵ Karnataka state the adolescent population is 18.9% of its total population.

Adolescent age group comprises of individuals in a transient phase of life requiring nutrition, education, counseling and guidance to ensure their development into healthy adults.

Nutritional needs during adolescence are increased because of the increased growth rate and changes in body composition associated with puberty.⁶ Eating practices and behaviors that are consistent with improving, maintaining and enhancing health is known as Healthy eating. Meal pattern and food intake are markers for nutrient intakes and diet quality. Nutrient intake has an influence on health and development of several chronic diseases. Meal patterns affect resting energy expenditure, body fat, bone density, serum cholesterol and many other situations.⁷ The development of healthy eating habits is important as the rapid physical growth in adolescents is associated with increased nutritional needs. Various studies on diet and nutrition intake of adolescents and young adults in the developed world have shown that their diets are often high in fats and refined carbohydrate. Adolescence is also a period of increased vulnerability to obesity. Lack of physical activity and outdoor sports, along with the
consumption of fat-rich ‘junk’ foods, is the major cause of obesity among the affluent population. The dietary pattern and the factors associated with this behavior and family’s role in adolescent help-seeking has been vastly underexplored in India and especially in Karnataka. Hence this study was undertaken to identify factors associated with dietary pattern among the adolescents. The negative impact of delayed dietary habits on the person, such as delayed diagnosis and treatment, and the poor outcomes identified as a result of help negation have been the driving force behind research in this area. Present study was conducted to study the dietary habits of school going adolescents and role of family in shaping the habits.

MATERIAL AND METHODS

This Cross-sectional study was conducted in Mangalore city of Dakshina Kannada also known as South Canara a coastal district situated in the southern part of Karnataka state for a period of two years from November 2014 to September 2016. Adolescents aged 10 to 19 years studying in grade VII to grade X of two selected schools and their parents/guardians. This study was conducted in two higher secondary schools selected by purposive sampling, out of 38 higher secondary schools in Mangalore city. These were Yenepoya School, located in Jeppin Mogaru area of Mangalore city, situated in ward no 54 in Mangalore city block with a strength of 170 students (VII to grade X). The second school was Sri Ramakrishna High School, located at S.R.S Home campus, Bunts hostel circle, ward no 35 in Mangalore city. The school has both primary and secondary schools with grades from I to grade X. Total strength was 320 (Grade VII to Xth).

Inclusion Criteria: Adolescents aged between 10 to 19 years studying in grade VII to X. Parents/Guardians of the adolescents participating in the study; Students who were willing to participate voluntarily

Exclusion criteria: Those who were not available even after 2 school visits

Sample Size and sampling method: All the adolescents from the two schools who met the inclusion and exclusion criteria were enrolled in the study. Accordingly a total of 384 adolescents were included in the study.

A pre-designed, pre-tested, semi-structured, validated questionnaire (Study tool) was used. The study tool comprises of questions pertaining to Socio-demographic profile and dietary habits of the study participants. Consumption of more than & equal to one per day is considered as adequate intake. To assess the socio-economic status of the respondents, modified BG Prasad’s classification was used.

Predesigned questionnaire developed on the basis of similar studies and tailor made as per local needs was given to 6 subject experts for content and consensual validity.

Data Collection: The study protocol was approved by the Institutional ethics and research committee. Selected schools were visited and necessary permission was obtained by the respective authority of the schools.

Majority of the adolescents viz., 63.9%, 90.0%, and 68.7% had inadequate intake of proportion of fruits, green leafy vegetables and junk foods per day during the past 7 days respectively.

As seen in table 2, gender, number of siblings in family, father literacy and religion were the socio-demographic variables found to have statistically significant association with fruit intake with $p<0.05$. 
As depicted in Table 3, females had 2.211 odds of adequate fruit intake per day when compared to male adolescents and has been found to be statistically significant (p<0.05).

Adolescents with father having intermediate and higher education had 2.901 odds of adequate fruit intake per day when compared to adolescents with father having education up to high school and has been found to be statistically significant (p<0.05).

We also found that adolescents belonging to non Hindu religion had 3.107 odds of adequate fruit intake per day when compared to Hindu religion and has been found to be statistically significant (p<0.001)
green leafy vegetables when compared to adolescents with mother having high school and below education and has been found to be statistically significant (p<0.05)

Age group of the adolescents, number of siblings in family, mother occupation, education of father, religion, type of family and socio-economic status of family were found to have statistically significant association with junk food consumption with p<0.05

Table 5: Logistic regression analysis for association between mothers literacy and adequacy of green leafy vegetable consumption (n=399)

| Category               | Green leafy vegetables adequacy | Odds ratio | P value | CI Lower | CI Upper |
|------------------------|---------------------------------|------------|---------|----------|----------|
| Up to high school      |                                 | 5          | 1.00    | 1.00     | 0.99     |
|                        |                                 | -3.2       | 1.00    | 0.99     | 0.99     |
| Intermediate and above |                                 | 35         | 0.54    | 1.00     | 0.99     |
|                        |                                 | (14.5)     | 0.54    | 1.00     | 0.99     |
| Skilled                |                                 | 52         | 0.00    | 1.00     | 1.00     |
|                        |                                 | (38.8)     | 0.00    | 1.00     | 1.00     |
| Unskilled              |                                 | 4          | 0.00    | 1.00     | 1.00     |
|                        |                                 | (23.5)     | 0.00    | 1.00     | 1.00     |

Adolescents with unemployed mothers had 1.752 odds of junk food consumption when compared to adolescents with mother being employed and has been found to be statistically significant (p<0.05)

Adolescents with father having intermediate and above education had 1.948 odds of junk food consumption when compared to adolescents with father having high school and below education and has been found to be statistically significant (p<0.05)

Adolescents belonging to Muslim and Christian religion together had 1.730 odds of junk food consumption when compared to adolescents belonging to Hindu religion and has been found to be statistically significant (p<0.05)

We also found that adolescents belonging to joint family had 2.358 odds of junk food consumption when compared to adolescents belonging to nuclear family and has been found to be statistically significant (p<0.05) and

Adolescents belonging to Class I and II socio-economic status had 2.111 odds of junk food consumption when compared to adolescents belonging to Class III and below and has been found to be statistically significant (p<0.05).

DISCUSSION

We interviewed the study participants about the diet during the past 7 days and was classified into adequate and vice versa on the basis of National Institute of Nutrition guidelines with respect to age and gender and found that 36.1% and 10.0%, of the adolescents had adequate intake of fruit, green leafy vegetables respectively, where as 68.7% of the adolescents reported of consuming junk foods in the past 7 days. Similar results were also highlighted in the report by World Health Organization on adolescent nutrition, wherein according to the Indian studies majority of the adolescents across all age group had inadequate intake of green leafy vegetables and fruits.

When assessed to identify the socio-demographic correlates, it was found that female adolescents (OR: 2.211; p=0.001), with father having intermediate and above education (OR: 2.901; p=0.003) and belonging to Muslim and Christian religion (OR:3.107; p=0.001) had higher odds of adequate fruit intake. A study conducted by Omidvar S et al7 shows that majority of female adolescents (58%) had daily intake of fruits. Similar results were obtained from the study by Xie et al, where girls are more likely to meet the recommended number of servings of fruits and green leafy vegetables. The findings were also in line with the study findings by Nilsen et al14 where girls had more fruits and green leafy vegetables intake than boys which was found to be statistically significant (p<0.001).

Education of mother and occupation of father were the socio-demographic factors found to be statistically associated with adequate intake of green leafy vegetables and other vegetables. On application of logistic regression as seen in table 6, we found that adolescents with mother having intermediate and above education had 5.140 odds of adequate intake of green leafy vegetables and that was found to be statistically significant (p=0.001). Low level of parental education was also reported by the World Health Organization as a reason for deficient intake of nutrients, which falls in line with our study findings. Findings from our study were also in line with the study findings of Nilsen SM et al, where adolescents both boys and girls had higher odds of daily vegetable intake [girls (46%) and boys (37%)] and also the study by Xie et al13 suggests that Subjects from families with parents who had higher educational attainment were more likely to meet the recommendations of vegetables.

When association of socio-demographic variables with consumption of junk foods was assessed, we found that, age of the adolescents, number of siblings in family, mother occupation, education of father, religion, type of family and socio-economic status of family were found to have statistically significant association with junk food consumption and on application of logistic regression for the above significant predictors of junk food consumption, we found that adolescents with unemployed mothers (OR: 1.752), with father having intermediate and above education (OR: 1.948), belonging to Muslim and Christian religion (OR: 1.730), Joint family (OR: 2.358) and belonging to Class I and II socio-economic status (OR: 2.111) had more odds of junk food consumption has been found to be statistically significant (p<0.05). study conducted by Antony LCM et al16 found socio-economic class to be the significant predictor of junk food consumption, wherein adolescents belonging to higher socio-economic status (Class I and II) had more junk food consumption when compared to adolescents belonging to lower and middle socio-economic status (Class III and below). Similar results were also obtained from the study...
by French SA et al, wherein adolescents belonging to higher socio-economic status calculated by combining parental education, employment, student eligibility for free/reduced lunch and family receipt of public assistance, had more junk food consumption when compared to lower socio-economic status and this correlates with our study findings of adolescents with higher education and higher socio-economic status had higher odds of junk food consumption. Conclusion: This study throws light on the existence of various health needs of the adolescents and should be addressed by their parents and they should be offered counseling services. Good practices like more consumption of protective foods like fruits and vegetables need to be nurtured.

REFERENCES

1. WHO | Adolescent development [Internet]. Who.int. 2016. [Last accessed on 17th November 2016]. Available from: http://www.who.int/maternal_child_adolescent/topics/adolescence/dev/en/.

2. Sivagurunathan C, Umadevi R, Rama R, Gopalakrishnan S. Adolescent health: present status and its related programmes in India. Are we in the right direction?. Journal of clinical and diagnostic research. JCDR. 2015Mar;9(3):LE01-LE06.

3. UNICEF The state of the world’s children 2011 [Internet]. [Last accessed on 14th December 2015]. Available from: https://www.unicef.org/adolescence/files/SOWC_2011_Main_Report_EN_02092011.pdf.

4. UNICEF Early and late adolescence [Internet] 2016. [Last accessed on 14 December 2016]. Available from: https://www.unicef.org/sowc2011/pdfs/Early-and-late-adolescence.pdf.

5. Park K. Park’s textbook of Preventive and Social Medicine. 22nd ed. Jabalpur: Banarasidas Bhanot; 2013.pp548-549.

6. Adolescent eating habits [Internet]. Uptodate.com. 2016. [Last accessed on13 December 2016]. Available from: http://www.uptodate.com/contents/adolescent-eating-habits.

7. Omidvar S, Begum K. Dietary pattern, food habits and preferences among adolescent and adult student girls from an urban area, South India. Indian Journal of Fundamental and Applied Life Sciences. 2014 Apr;4(2):465-73.

8. Yenepoya School [Internet] 2016. [Last accessed on 12 June 2016]. Available from: http://www.theyenepoyaschool.com/contact-us.html

9. Educational Institution [Internet] 2016 [Last accessed on 15 June 2016]. Available from: http://www.buntsmathrsangha.net/institutions_srirakrishnaghishschool.html

10. International Journal of Technical Research And Applications| Health seeking behavior among adolescent students in coastal district of south india[Internet]. 2016. [Last accessed on25 December 2016]. Available from: http://www.ijitra.com/special-issue-view/health-seeking-behavior-among-adolescent-students-in-coastal-district-of-south-india.pdf.

11. Background - Government of India [Internet]. Nrhm.gov.in. 2016. [Last accessed on28 December 2016]. Available from: http://nrhm.gov.in/nrhm-components/rmnch-a/adolescent-health-rksk/ahfs/background.html.

12. Adolescent Nutrition: A review of the situation in selected South East Asian Countries. World Health Organization. 2006. [Last accessed on15 December 2016]. Available from: http://apps.searo.who.int/pps_docs/PPS239.pdf.

13. Xie B, Gilliland FD, Li YF, Rockett HR. effects of ethnicity, family income, and education on dietary intake among adolescents. Prev Med. 2003;36(1):30-40

14. Nilsen SM, Krokstad S, Holmen TL, Westin S. Adolescents health related dietary patterns by parental socio-economic position, The Nord-Trondelag Health Study (HUNT). The European Journal of Public Health. 2009;20(3):299-305.

15. Bere E, Brug J, Klepp KL. Why do boys eat less fruit and vegetables than girls?. Public Health Nutrition. 2006;11(3):321-325.

16. Antony LCM, Bhatti LCRK. Junk food consumption and knowledge about its effects among teenagers: A descriptive study. International Journal of Science and Research. 2013;4(6):1133-1136.

17. French SA, Story M, Sztainer DN, Fulkerson JA, Hannan P. Fast food restaurant use among adolescents: associations with nutrient intake, food choices and behavioural and psychosocial variables. International Journal of Obesity. 2001;25:1823-183

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