

Subject Area:

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A study to assess dietary pattern among school-going adolescents of central India

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Abstract

Background

In India, adolescents constitute 21.4% that is one-fifth of the total population and world adolescents' (10–19 years) population is more than 1.2 billion. The trend of consumption of fast food increases worldwide, and in India, fast food production and consumption is very high. The popularity of these food is because of easy preparation and more convenient to finish the meal in less time. Great taste, attractive packaging, and advertisement play a very important role in promotion of such food adolescents. Adolescents also develop the various problems related to health because of less nutritious diet, such as Chinese food, junk food, and beverages.

Methodology

The present study was a cross-sectional study and conducted for a duration of three months from January 2017 to March 2017. A total of 437 adolescents enrolled with their consent from five randomly selected schools of a city in Madhya Pradesh, India. All adolescents who were present in school on the day of visit and willing to participate were included in the study.

Result

In our study, a total of 437 students were registered, out of which 97.02% were boys. About 41.82% were of early adolescence and the rest of them were of late-adolescence group. Majority of the adolescents consumed regular meals such as chapati (84%), rice (79%), and dal (74%), they consumed relatively less, green leafy vegetables (60%) than the other vegetables (67%). Most of the participants consumed milk most of the days in a week, but more than 20% students consumed fried food/pizza/burger/fast food more frequently (more than 4 days a week) in a week, and only very few students were not consuming these foods or consuming less frequently.

Conclusion

Most of the adolescents consume regular meals, but adolescents consumed irregular or skipping of meal and breakfast is still high. And more than 50% adolescents consumed chocolate/pastries/sweet/cake/cookies/bread/toast/cookies/biscuits/cold drinks/soft drinks/potato chips/namkeens/deep-fried snacks/pizza/burger/Frankie, or any other fast food (including Chinese food), these foods are highly energy dense and have less nutritious value.

Keywords: Adolescent, dietary pattern, school health

INTRODUCTION

Adolescence is derived from adolescere (Latin verb), which means 'grow to maturity.' This is a stage of life between childhood and adulthood during which the individual experiences rapid growth and development in the form of physical and mental, behavioral, emotional, and social changes and challenges [1,2]. During adolescence,

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individuals develop the reproductive system, changes in the body in the form of secondary sexual character, and gender identity [3]. WHO defines the adolescence as stage of life between the age of 10 and 19 years [4]. In India, adolescents constitute 21.4% that is one-fifth of the total population [5] and world adolescents' (10–19 years) population is more than 1.2 billion [6]. The trend of consumption of fast food increases worldwide, and in India, fast food production and consumption is very high [7]. Popularity of these food is because of easy preparation and more convenient to finish the meal in less time. Great taste, attractive packaging, and advertisement play a very important role in promotion of such food adolescents [8–10]. Adolescents also develop the various problems related to health because of less nutritious diet, such as Chinese food, junk food, and beverages. These foods have high fat and contain high-energy density and less fiber [11,12]. The pattern commonly seen among adolescents, consumption of energy dense food, fast food, irregular meal, skipping of breakfast, and little consumption of fruits and vegetables [13,14]. Consumption of such food results in obesity and various life-threatening noncommunicable diseases in developing countries [15,16]. Food habits that develop in childhood remain persistent in adulthood, thus, it is important to educate the children about the harmful effect of fast food and the choice of healthy food. This study was done to assess the dietary habits among adolescents.

METHODOLOGY

The present study was a cross-sectional study and conducted for a duration of 3 months from January 2017 to March 2017. A total of 437 adolescents enrolled with their consent from five randomly selected schools of a city in Madhya Pradesh, India. All adolescents who were present in school on the day of visit and willing to participate were included in the study. Data were collected by using a structured self-administered questionnaire that was developed with the help of available evidence by the researchers. The questionnaire was used to collect the demographic data and dietary habits of adolescents.

RESULTS

In our study, a total of 437 students were registered, out of which 97.02% were boys. About 41.82% were of early adolescence (10–14 years) and the rest of them were of late-adolescence group (15–19 years). Most of the participants (74.82%) belonged to nuclear family. Parents of most of the participants were well-qualified that were graduates and postgraduates, only parents of one participant were found to be illiterate.

The majority of adolescents consumed regular meals such as chapati (84%), rice (79%), and dal (74%), they consumed relatively less, green leafy vegetables (60%) than the other vegetables (67%) and more than 50% of them consumed high-calorie food such as chocolates, cake, pastries, burger, pizza, Chinese food, and beverages.

Most of the individuals consuming fruits in a week on daily basis were about 44.16%, the rest of them consuming fruits less frequently or not consuming. Most of the participants consumed milk most of the days in a week, but more than 20% students consumed fried food/pizza/burger/fast food more frequently (more than 4 days a week) in a week, and only very few students were not consuming these foods or consuming less frequently. In our study, 229 (52.40%) participants had taken breakfast daily and about 119 (27.23%) adolescents had taken breakfast three to four times a week, 47 (10.76%) adolescents consumed breakfast one to two times a week, and 42 (9.62%) students never took any breakfast.

Fig. 2 shows a pattern of missing meals among adolescents as 283 (64.74%) adolescents consumed meals regularly, 131 (29.98%) adolescents missed meals—one to two times a week, and only 23 (5.26%) adolescents skipped meals three to four times a week.

DISCUSSION

Nutrition plays a very important role in growth and development of adolescents, during which the development of healthy eating habits is essential. There is a dual burden of undernutrition and overnutrition in this age group. In our study (Table 1), a total of 437 students participated, 97.02% were boys and the rest of the participants were females who were aged 14–17 years. Whereas in other studies such as Harika Yadav *et al.* [17], out of 200 boys, 127 (63.5%) and out of 200 girls, 99 (49.5%) were girls, were aged 19 years, and a study conducted in Baroda by Nadira Mallick *et al.* [18] showed that 52% were girls and 48% were boys and half of them belonged to the age group of 14–16 years. In our study, most of the respondents belong to nuclear family, similar findings were found in Harika Yadav *et al.* [17]. In our study (Table 2),

Table 1: Sociodemographic profile of participants

Particulars	n (%)	
Sex		
Boys	424	(97.02)
Girls	13	(2.98)
Age (in years)		
Early adolescent (10-14 y)	183	(41.87)
Late adolescent (15-19 y)	254	(58.13)
Type of family		
Nuclear	327	(74.82)
Joint	110	(25.18)
Education qualification	Father	Mother
Illiterate	1	1
Primary	8	5
Middle	5	16
High school	19	22
Matriculate	1	3
Intermediate	7	7
Graduation	139	171
Postgraduation	257	212

the majority of adolescents consumed regular meal such as chapati (84%), rice (79%), and dal (74%), they consumed relatively less, green leafy vegetables (60%) than the other vegetables (67%) and more than 50% of them consumed high-calorie food such as chocolates, cake, pastries, burger, pizza, Chinese food, and beverages. A study conducted at Baroda revealed that about 80% participants consumed regular meal and nearly 50% consumed bakery [19].

In our study (Table 3), most (44.16%) of the individuals were consuming fruits on daily basis, while 26.54% were consuming 4–6 days a week, about 6% were consuming fruits less frequently or not consuming. Most of the participants were consuming milk most of the days in week, but more than 20% students were consuming fried food/pizza/burger/fast food more frequently (more than 4 days a week) in a week, and only very few students were not consuming these food or consuming less frequently. Whereas in another study, 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. According to Harika Yadav *et al.* [17], in Nepal, a study among school children revealed that fast foods (ready-to-eat snacks, chips, etc.) were referred by more than two-thirds of them and that advertising influenced preferences in 80% [20]. A study by Punjab Agricultural University, Ludhiana, on consumption pattern of fast foods among teenagers, found that fast foods are commonly consumed between regular meals [21]. The daily consumption of egg was observed in 26 (5.95%) only and 120 (27.46%) consume less than once in a week, indicating that the protein consumption is low, and it has been replaced by unhealthy junk food, Ahmed *et al.* [22] also found in their study that 26% girls were not consuming eggs.

In our study (Fig. 1), 291 (66.59%) students had taken breakfast daily and about 47 (10.76%) students had taken breakfast 1–2 days a week and 42 (9.62%) students never took any

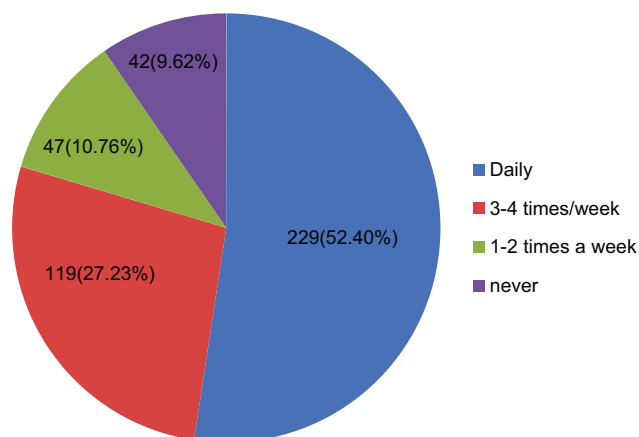


Figure 1: Consumption pattern of breakfast among adolescents.

breakfast, whereas in another study by Kotecha *et al.* [3,19], nearly 60% of adolescents had their breakfast daily, whereas 13% had breakfast only 3–4 days a week, and 16% had their breakfast only once or twice a week, and 12% of adolescents never had breakfast.

In our study (Fig. 2), 283 (64.74%) adolescents consumed meals regularly, 131 (29.98%) adolescents missed meals one to two times a week, and only 23 (5.26%) adolescents skipped meals —three to four times a week. A study conducted by Kotecha and colleagues showed that 55.4% adolescents consumed meals regularly and about 4% skipped meals three to four times a week [3,19].

CONCLUSION

Most of the adolescents consume regular meals, but adolescents consumed irregular or skipping of meals and breakfast is still high. And more than 50% adolescents consumed chocolate/pastries/sweet/cake/cookies/bread/toast/cookies/biscuits/cold drinks/soft drinks/potato chips/namkeens/deep-fried snacks/Pizza/burger/Frankie, or any other fast food (including

Table 2: Pattern of food items consumed by adolescents in 24 h

Food items	n (%) [437 (100.00)]
Chapati	369 (84.44)
Rice	347 (79.40)
Dal	327 (74.83)
Milk	323 (73.40)
Green leafy vegetables	261 (59.72)
Fruits and fruit juice	272 (62.24)
Other vegetables	293 (67.05)
Chocolate/pastries/sweet/cake/cookies/bread toast/cookies/biscuits/Cold drinks/soft drinks/Potato chips/namkeens/deep-fried snacks/Pizza/burger/Frankie or any other fast food (including Chinese food)	219 (50.11)
Salad	173 (39.59)
Puri/paratha	181 (41.42)
Egg	84 (19.22)
Meat/fish/chicken	53 (12.13)

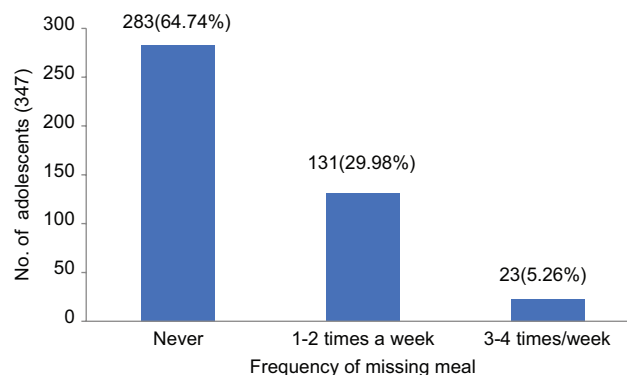


Figure 2: Pattern of missing meals among adolescents.

Table 3: Consumption pattern of food in a week among participants

Food item	Never	Less than once a week	1-3 days a week	4-6 days a week	Daily
Fruits	6 (1.37)	20 (4.58)	102 (23.34)	116 (26.54)	193 (44.16)
Milk	19 (4.35)	26 (5.94)	31 (7.09)	50 (11.44)	311 (71.17)
Fried food/pizza/burger/fast food	78 (17.85)	131 (29.98)	129 (29.52)	91 (20.82)	8 (1.83)
Egg	124 (28.38)	120 (27.46)	126 (28.83)	41 (9.38)	26 (5.95)
Soda/cold drink	57 (13.04)	215 (49.20)	110 (25.17)	40 (9.15)	15 (3.43)

Chinese food), these foods are highly energy dense and have less nutritious value.

Recommendation

- Educate and motivate the adolescents to add fruits, salad, protein, and vegetables in their diet.
- Educate the adolescents to avoid chocolate/pastries/sweet/cake/cookies/bread/toast/cookies/biscuits/cold drinks/soft drinks/potato chips/namkeens/deep-fried snacks/pizza/burger/Frankie, or any other fast food (including Chinese food), as these food have high-calorie and less nutritious value, thus harmful to health.
- Monitoring and motivating by school staff of adolescents to take regular diet on time, especially breakfast.

Ethical Clearance

All methods were in agreement with our hospital research committee's ethical requirements.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Bhave SY, Nair MK. Course manual for adolescent health. Part-II: Indian perspective. In: Bhave SY, editor. *Adolescent Health*. New Delhi: Indian Academy of Pediatrics; 2002. 7–11.
- Due P, Holstein BE, Lynch J, Diderichsen F, Gabhain SN, Scheidt P, et al. Health Behaviour in School-Aged Children Bullying Working Group. Bullying and symptoms among school-aged children: international comparative cross sectional study in 28 countries. *Eur J Public Health* 2005; 15:128–132. doi: 10.1093/eurpub/cki105.
- Nath A, Garg S. Adolescent friendly health services in India: a need of the hour. *Indian J Med Sci* 2008; 62:465–472.
- Rutter M, Graham P, Chadwick OF, Yule W. Adolescent turmoil: fact or fiction? *J Child Psychol Psychiatry* 1976; 17:35-56. doi: 10.1111/j.1469-7610.1976.tb00372.x. PMID: 1249139.
- Progress for children: a report card on adolescents. Sociodemographic profile of adolescents. April 2012, UNICEF. Available at: http://www.unicef.org/publications/files/Progress_for_Children_-_No._10_EN_04232012.pdf [accessed November 20, 2014].
- Strategy Handbook. Rashtriya Kishor Swasthya Karyakram. Adolescence Health Division Ministry of Health and Family Welfare Government of India; 2014. Available from: <http://nhm.gov.in/images/pdf/programmes/rksk-strategy-handbook.pdf>. [Last accessed on 2014 Nov 20].
- Ashakiran S, Deepthi R. Fast foods and their impact on health. *J Krishna Inst Medical Sci Univ* 2012; 1:7–15.
- Allamani A. Addiction, risk, and resources. *Subst Use Misuse* 2007; 42:421–439.
- Dixon HG, Scully ML, Wakefield MA, White VM, Crawford DA. The effects of television advertisements for junk food versus nutritious food on children's food attitudes and preferences. *Soc Sci Med* 2007; 65:1311–1323.
- Fister K. Junk food advertising contributes to young American's obesity. *BMJ* 2005; 331:1426.
- Du S, Mroz TA, Zhai F, Popkin BM. Rapid income growth adversely affects diet quality in China – particularly for the poor!. *Soc Sci Med* 2004; 59:1505–1515.
- Printice AM, Jebb SA. Fast foods, energy density and obesity: a possible mechanistic link. *Obes Rev* 2003; 4:187–194.
- Cavadini C, Decarli B, Dirren H, Cauderay M, Narring F, Michaud PA. Assessment of adolescent food habits in Switzerland. *Appetite* 1999; 32:97–106.
- Dausch JG, Story M, Dresser C, Gilbert GG, Portnoy B, Kahle LL. Correlates of highfat/lownutrientdense snack consumption among adolescents: results from two national health surveys. *Am J Health Promot* 1995; 10:85–88.
- Ashakiran S, Deepthi R. Fast foods and their impact on health. *J Krishna Inst Medical Sci Univ* 2012; 1:7–15.
- Jaisheeba AA, Sornaraj R, Gayathri K. Influence of westernized culture and changed dietary habits on the BMI status of the school children of Tirunelveli. *Int J Pharm Tech Res* 2012; 4:1065–1077.
- Yadav H, Naidu S, Baliga SS, Mallapur MD. Dietary pattern of college going adolescents (17-19 years) in urban area of Belagavi. *Int J Recent Sci Res* 2015; 6:3774–3777.
- Mallik N, Ray S, Mukhopadhyay S. Eating behaviours and body weight concerns among adolescent girls. *Adv Public Health* 2014; 2014, Article ID 257396. Available from: <https://doi.org/10.1155/2014/257396>. [Last accessed on 2014 Nov 20].
- Kotecha PV, Patel SV, Baxi RK, Mazumdar VS, Shobha M, Mehta KG, et al. Dietary pattern of school going adolescents in Urban Baroda, India Ekta. *J Health Popul Nutr* 2013; 31:490–496.
- Sharma I. Trends in the intake of ready to eat food among urban school children in Nepal. *SCN News* 1998; 16:21–22.
- Sadana B, Khanna M, Mann SK. Consumption pattern of fast foods among teenagers. *Appl Nutr* 1997; 22:41–45.
- Ahmed F, Zareen M, Khan MR, Banu CP, Haq MN, Jackson AA. Dietary pattern, nutrient intake and growth of adolescent school girls in urban Bangladesh. *Public Health Nutr* 1998; 1:83–92.