

## Research Article

# A study of habit of fast food eating among school going adolescents and parental advice and its relation with their nutritional status

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## ABSTRACT

**Background:** A study of habit of fast food eating among school going adolescents and parental advice and its relation with their nutritional status.

**Methods:** Design: an epidemiological analytic observational study. Subjects: 600 adolescents' 15-19 years of age, studying in 11 and 12 classes and included both boys and girls. A single observer interviewed each student and gathered the information regarding their eating habits. It was recorded on a pre-tested open and closed ended Performa. Nutritional status was assessed by BMI. The adolescents for the purpose of analysis were broadly grouped in two groups. Group I (those having normal BMI ranging 18.5 to 25) and group II (Malnourished i.e. those having BMI <18.5 to >25). Group II adolescents were further divided into group IIa (Underweight, BMI<18.5) and group IIb is (Over weight and obese BMI >25).

**Results:** Adolescents who took both fast food and soft drinks 73.1% were malnourished (group II) as compared to those who did not take both the things 13.7% in group II. Difference was found to be statistically significant (p value <0.01). Out of 73.1% who took both fast food and soft drinks 62.1% and 11.0% were in group IIa (Underweight, BMI <18.5) and group IIb (Over weight and obese BMI >25) subsequently. Incidence of malnutrition was significantly less in 12.4% adolescents' interfered by their parents as compared to 69.6% of those where parents was not interfering. Difference was found to be statistically significant (P value <0.01).

**Conclusion:** A habit of fast food eating and taking soft drink provokes malnutrition. Interference in eating by parents is beneficial among adolescents.

**Keywords:** Fast food eating, BMI, Adolescents, Malnutrition

## INTRODUCTION

Adolescence is defined as transient stage between childhood & adulthood and a formative period during which many life patterns are learned & established. It is a crucial and dynamic time for young people as they begin to develop their capacity for empathy abstract thinking & future time perspective. It is a time when the closeness & dependency on parents and older family members begins to give way to more intense relationship with peers and other adults. It is also a time when physiologically

capacity is established. Eating habits are important because.

- (i) They have a great impact on their nutrition of the adolescents.
- (ii) Habits once established are difficult to change.
- (iii) Their habits shall have effect on their life as well as their family later on the.

- (iv) Eating habits are greatly influenced by peers, mass media, social and cultural norms.

Fast food can be appealing for a variety of reasons, including convenience, price and taste. For adolescents who do not always understand the health consequences of their eating habits, fast food may appear especially appetizing. However, regularly consuming fattening junk food can be addictive for children and lead to complications like obesity, undernutrition, chronic illness, low self-esteem and even depression, as well as affecting how they perform in school and extracurricular activities. The frequency of consuming different categories of snacks was generally once to thrice a week. Almost all the children had strong liking for fast foods, fried foods and sweet snacks. Chowmein, maggi, samosa, ice-cream (mainly ice candies), chocolate and toffee formed the popular snack items for children. This finding is consistent with some other studies done on adolescents.<sup>1-3</sup> Another study reported that 60% of snacks consumed by teenagers are high in fat and low in nutritional quality.<sup>4</sup> Procuring food items available in school was common; only 29.3% never bought anything in school

## METHODS

A total of 607 adolescents from four government and four non-government (private) schools formed the study material. Out of these 607 adolescents 7 were excluded from the study on the basis of exclusion criteria (3 of them were suffering from respiratory diseases and one each had cardiac abnormality, hepato-splenomegaly, icterus and clubbing). The study was carried out on 600 adolescents between 15-19 years of age, studying in 11 and 12 classes and included both boys and girls drawn from randomly selected schools of urban Agra. Permission to conduct the study in their school was taken from the principal of the school. Informed consent of the students was also taken before including them into the study. A single observer interviewed each student and gathered the information regarding their eating habits. It was recorded on a pre-tested open and closed ended Performa. The adolescent was then subjected for a thorough general and systemic examination findings recorded. They shall be convinced that full secrecy would be maintained.

### *Sample size estimation*

Prevalence of malnutrition amongst adolescents has been reported to vary from 18% in boys to 30% in girls as represented by NFHS 1998-99. A study from 1956 to 1965 provided baseline data to show that the girls had significantly improved in height, weight and chest circumference from previous cohorts, yet they remained 30-40% deficient in calories, 25-37% deficient in protein, 39-55% deficient in Iron, and 10-34% deficient in vitamin A (Chaturvedi, Kapil, Bhanthi, Gnanasekaran & Panedy, 1994; Chaturvedi, Kapil, Gnanasekaran, Sachdev, Panedey & Bhanti, 1966). Assuming prevalence

of malnutrition as 25% the sample size was calculated as follows. The sample size for study was calculated by using qualitative method applying the formula, which is written as below.<sup>5</sup>

$$n = \frac{4PQ}{(20\% \text{ of } P)^2}$$

Where,

P = Prevalence

Q = 100-P

n = No. of sample

Percentage of malnutrition is 25% among adolescents (so P = 25%).

On this basis sample size comes out to be 300. So sample should be more than 300 adolescents for valid results.

### *Selection of the schools*

A list of all these schools recognized by district schools authority of Agra (both govt. and private) was prepared. Eight of these schools whose principal agreed for being a part of this study were chosen randomly.

### *Performa*

Performa for the study comprised of information about the adolescent's name, age, sex, religion and class and school type. Question related to the eating habits, likes and dislikes of foods, use of drug, knowledge about balanced diet, interference regarding their diet by their parents.

### *Pre-testing*

The preforma was initially tested on 25 adolescent of one school and problems were rectified based on this final Performa was made.

### *Exclusion criteria*

Any adolescent suffering from any acute or chronic illnesses or any systemic illness was not included in the study. Any adolescent who did not give consent was also excluded.

### *Recording of observation*

Students of one class (not having exclusion criteria) were briefed about the objectives of the study and assured confidentiality regarding their Performa by the single observer.

The adolescents themselves filled all questionnaires. A single observer was present there to clarify if the adolescent faced any problem in filling the performa.

## Examination

Examination of each adolescent was carried out as below.

### General examination

It included pallor, icterus, clubbing, cyanosis, lymphadenopathy, edema, teeth, eyes etc.

### Systemic examination

Systemic examination included detailed examination of respiratory, cardiac, abdominal and neurological systems.

### Assessment of the nutritional status

A physical examination on all the children was conducted this included height, weight, and subsequently BMI was also calculated.

### Weight (in kg)

Spring type of balance was used for this purpose. The adolescents were weighed in minimal clothings. The weighing scale was checked for zero error each time the subject is weighed.

### Height (in cm)

Height was recorded of stadiometer fitted against the wall. Child without shoes and socks was to stand with feet parallel on even flat platform, arm hanging on this sides, buttocks and heels touching against the wall. The head was held comfortable, erect, with lower border of the orbit of the eye in the same horizontal plane as the external canal of the ear (Frankfort) plane. The head piece of the measuring device which should gently lowered to make contact with the top of the head. The height was recorded in centimeter

### BMI (kg/mt)

BMI was calculated by weight [kg/height(m)]. For statistical purposes BMI ranges divided into two groups- Group I normal (18.5 to 25), group II malnutrition (<18.5 and >25). Group II was further divided into-group IIa underweight (<18.5) and IIb overweight (>25).

## RESULTS

Total 600 adolescents were included in study. The study was carried out on 600 adolescents 15-19 years of age, studying in 11 and 12 classes and included both boys and girls drawn from randomly selected four government and four private schools of urban Agra. Permission to the conduct the study in their school was taken from the principal of the school. Informed consent of the students was also taken before including them into the study. A single observer regarding his/her eating habits, the information was recorded and gathered on a pre-

designed, pre-tested open and closed ended Performa interviewed each student. The adolescent was then subjected for a thorough general and systemic and examination findings recorded. They shall be convinced that full secrecy would be maintained.

**Table 1: Fast food eating habits and use of soft drinks vs. sex.**

| Sex    | Fast food eating habits | Use of soft drinks |              | Total         |
|--------|-------------------------|--------------------|--------------|---------------|
|        |                         | No                 | Yes          |               |
| Female | No                      | 109<br>90.8%       | 11<br>9.2%   | 120<br>100.0% |
|        | Yes                     | 24<br>12.4%        | 169<br>87.6% | 193<br>100.0% |
|        | <b>Total</b>            | 133<br>42.5%       | 180<br>57.5% | 313<br>100.0% |
| Male   | No                      | 110<br>91.7%       | 10<br>8.3%   | 120<br>100.0% |
|        | Yes                     | 9<br>5.4%          | 158<br>94.6% | 167<br>100.0% |
|        | <b>Total</b>            | 119<br>41.5%       | 168<br>58.5% | 287<br>100.0% |

Table 1 depicts sex vs. fast food habits and use of soft drinks. Females were fond of eating fast food 193/313 (61.7%) as compared to males 167/287 (58.2%). Difference was not found to be statistically significant (P value 0.386). Further study of consumption of soft drinks in adolescents revealed 180/313 (57.5%) females and 168/287 (58.5%) males often took soft drinks. Difference was not found to be statistically significant (P value 0.799).

**Table 2: Fast food eating habits and use of soft drinks vs. BMI.**

| Fast food eating habits | Use of soft drinks | Group II     |              |             | Total         |
|-------------------------|--------------------|--------------|--------------|-------------|---------------|
|                         |                    | Group I      | IIa          | IIb         |               |
| No                      | No                 | 189<br>86.3% | 22<br>10.0%  | 8<br>3.7%   | 219<br>100.0% |
|                         | Yes                | 21<br>100.0% |              |             | 21<br>100.0%  |
|                         | <b>Total</b>       | 210<br>87.5% | 22<br>9.2%   | 8<br>3.3%   | 240<br>100.0% |
| Yes                     | No                 | 22<br>66.7%  | 10<br>30.3%  | 1<br>3.0%   | 33<br>100.0%  |
|                         | Yes                | 88<br>26.9%  | 203<br>62.1% | 36<br>11.0% | 327<br>100.0% |
|                         | <b>Total</b>       | 110<br>30.6% | 213<br>59.2% | 37<br>10.3% | 360<br>100.0% |

Table 2 depicts BMI vs. fast food eating habits and use of soft drinks. Adolescents who took both fast food and soft drinks were more likely to be malnourished (group II) 239/327 (73.1%), as compared to those who did not take

both the things 30/219 (13.7%) in group II. Out of 73.1% who took both fast food and soft drinks 62.1% and 11.0% were in group IIa and group IIb subsequently. Differences were found to be statistically significant (P value <0.01).

**Table 3: Interference in eating by parents vs. BMI.**

| Sex    | Parental interference | Group II     |              |             | Total         |
|--------|-----------------------|--------------|--------------|-------------|---------------|
|        |                       | I            | IIa          | IIb         |               |
| Female | No                    | 59<br>33.5%  | 94<br>53.4%  | 23<br>13.1% | 176<br>100.0% |
|        | Yes                   | 119<br>86.9% | 15<br>10.9%  | 3<br>2.2%   | 137<br>100.0% |
|        | Total                 | 178<br>56.9% | 109<br>34.8% | 26<br>8.3%  | 313<br>100.0% |
| Male   | No                    | 50<br>27.3%  | 117<br>63.9% | 16<br>8.7%  | 183<br>100.0% |
|        | Yes                   | 92<br>88.5%  | 9<br>8.7%    | 3<br>2.9%   | 104<br>100.0% |
|        | Total                 | 142<br>49.5% | 126<br>43.9% | 19<br>6.6%  | 287<br>100.0% |

Table 3 shows that 40.2% of the parents often interfered in the eating habits of the adolescents. Interference was more with the females (137/313) 43.8% as compared to males (104/287) 36.2%. Further study of interference in eating by parents vs. BMI revealed that in 359 adolescent in whom parents did not interfere 250/359 (69.6%) were in group II and 109/359 (30.4%) in group I. On the other hand among 241 adolescent in which parents interference was there 30/241 (12.4%) were in group II and 211/241 (87.6%) in group I. Difference was found to be statistically significant (P value <0.01). Majority in the group II had under nutrition (group IIa).

## DISCUSSION

Eating habit has great impact on the nutrition an adolescent and gently influenced by peers, mass media, social and cultural norms.<sup>6</sup> Eating habits of adolescents are also important because when settle down as adult they have to establish the eating behavior in a new family. Fast foods have high level of fat and sugars that are not only unhealthy but addictive and that creates a vicious cycle making it hard for children to choose healthy food. High content of trans fat in commercially available fast foods predispose children to risk of future heart diseases.<sup>7</sup> Energy density of fast food is more than twice the recommended daily allowance for children.<sup>8</sup> Fast food intake leads to higher proportion of calories being derived from total and saturated fat.<sup>9</sup> Moreover, the micronutrient content (carotene, vitamin A, vitamin C) of the fast food is also low.<sup>10</sup> Low levels of calcium and magnesium in the diet can contribute to osteoporosis. Diets rich in free sugars can lead to increased risk of dental caries.

In our study we studied the missed meals in terms habit of eating fast food and taking soft drinks amongst the adolescents. The observation shown in Table 1, 2, and 3 shows the adolescents who took both fast food and soft drinks were more likely to be malnourished (group II) 239/327 (73.1%), as compared to those who did not take both the things 30/219 (13.7%) in group II. Difference was found to be statistically significant (P value <0.01)

Incidence of malnutrition was significantly less (12.4%) in adolescent's interfered by their parents as compared to 69.6% of those where parents was not interfering. Difference was found to be statistically significant (P value <0.01).

## Key messages

A habit of eating fast foods in adolescents is potentially harmful to their nutritional status. Interference in eating by parents is beneficial among adolescents.

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