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Original Research Article

Fast Food Consumption Vis-À-Vis Eating Disorder and BMI of Children, Adolescents and Adults Involved in Green Activities in Purba Medinipur District, West Bengal (India)

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ABSTRACT

The present study delineated a potential relationship between consumption of unhealthy fast foods and symptoms of eating disorders in people engaged in green activities like farming and fishing. The study area chosen was district of Purba Medinipur, West Bengal, India, due to the fact that most of the people in this region are engaged in green activities. Eating disorder test EAT-26 was used as instrument. It was observed that rate of consumption of fast foods was more in adolescents and children (4 to 5 days/week) than the adults (mostly 1 to 2 days/week). Non-specific (Binge) eating disorder was prevalent in children and adolescents of both sexes, which might be correlated with fast food eating frequencies. Adults mostly had no eating disorders. However, analyses of body mass index revealed that the subjects, irrespective of age and sex, were not obese, probably due to participation in the green activities, directly or indirectly.

Keywords: Eating disorder, Fast food, Green activity, BMI.

INTRODUCTION

Eating disorder is a complex psychiatric situation in which cognitive distortions related to food, body weight and disturbed eating patterns can lead to significant and potentially life threatening medical and nutrition complication. People, particularly females with an eating disorder experience extreme disturbances in their eating behaviors and related thoughts and feelings. The exact cause of eating disorders is unknown. However, many physicians believe that a combination of genetic, physical, social, and psychological factors may contribute to the development of an eating disorder. The most common but serious eating disorders are anorexia nervosa (anorexia), bulimia nervosa (bulimia) and binge eating disorder (BED), which has no other specification. [1] However, recent studies indicated that binge eating as the intake of large amounts of food in a short time with an associated feeling of loss of control. [2] Anorexia is characterized by an intense fear of being obese and a relentless pursuit of thinness. A significant proportion of people with anorexia will also develop bulimia. The essential features of bulimia are binge eating followed by self-induced vomiting and inappropriate use of laxative and fluid tablets. Incidentally, BED is one of the most dangerous psychological disorders which cause damage to individual and social consequence, ultimately leading to death. [3] Common features of eating disorder problems are social with pronunciation, insomnia, irritability, confusion, depressed mood (feeling hopeless, guilty, and worthless) and impulse control difficulties. [4] Risk factors

associated with eating disorder symptoms include negative effect, decreased self-esteem, negative body image or body dissatisfaction, neuroticism, impulsiveness, depression and psychological distress. [5,6]

Recent researches showed that there might be some relation between eating disorder and physical activities. [7] The pattern of food consumption is even different for people who work in day in comparison to night workers. In a study, it was shown that food consumption by the day workers were influenced significantly by time availability than hunger, but less so than with night workers, who mostly depend upon snacks. [8] Higher proportions of night workers were found to be engaged in inappropriate intakes of food, ultimately leading to obesity and health issues related to over-weight. [9] Interestingly, it was also reported that there might be a positive relation between eating disorders and exercise dependence in non-athlete populations, [10] suggesting that non-athlete exercising people like farmers and fishermen might develop eating disorders involuntarily due to their nature of activities. In rural India, people are mostly engaged in involuntary exercises like farming and fishing. A very recent study showed that these populations rely mostly on staple foods and consider fast foods and soft drinks unhealthy. [11] However, consumption of fast foods and sweet dishes with lower physical activities is a global problem nowadays, which leads to adverse health situations in young adults of both sex. [12] A recent trend has been surfaced in our country in relying on spicy fast foods and eating away from home. [13] Shifting from home cooked traditional meals towards spicy fast foods might adversely influence the nutrient intake as well as compromise energy balance in these non-athlete exercising populations.

In the present study, we hypothesized that there might be a potential relationship between symptoms of eating disorders and consumption fast foods in people of different age groups engaged in green activities. Purba Medinipur district of West Bengal was selected due to the fact that most of the people in this region are engaged either in farming or in fishing, which we consider as green activities. This type of research is undoubtedly important, especially in non-clinical samples composed of non-athlete physical workers for whom disordered eating might be a common case, not only for their occupation, but also for their limited management of time. To our knowledge, it was one of the very few studies that dealt with health effects of fast foods on people of different age groups of rural West Bengal, and probably the first with the populace engaged in green activities like farming and fishing. In this way, we would be able to know, at least in part, the pattern of energy metabolism in the form of BMI in relation to food habits in rural India.

MATERIALS AND METHODS

Participants

The investigation was carried out on a sample of 120 persons. Out of 120 samples, 40 samples each were children, adult and adolescent – both female and males. Purposive sampling method was employed to select the sample. No inclusion/exclusion criteria were adopted. Ages of participants ranged from 5 to 60. Both written questionnaire and direct interview method were used as the method of collecting data. Only those samples that were willing to give response were selected. Instructions were given to them properly for data collection in family environment. The responses given by the subjects were carefully scrutinized on the spot by the investigator. They were asked to fill up the proforma of general background schedule and Eating Attitudes Test (EAT-26).

Instruments

General Background Schedule – It was consisted of 11 questions. There were two types of questions – one type was about personal data and the other was about physical data. Demographic and physical data were collected through it.

Questionnaire contained items like name, age, sex, educational background, height, weight etc. From the physical data, body mass index (BMI) of each individual was calculated.

Fast Food Consumption Assessment [14,15] – A peer-reviewed, researcher developed Fast Food Frequency Questionnaire (FFFQ) was used in combination with a validated survey protocol to collect data on the health status and food consumption of the subjects. The food categories that were assessed included local fast foods like egg rolls, chow min and samosa (a local type of vegetable cutlet with savory fillings). The foods were selected based on a prior survey of the consumption patterns of the locals. Frequency of consumption was determined by the number of times an individual food was reported to be consumed for a month by each participant and summing all the foods by category for each participant. For each food item, the participants selected the frequency of consumption measured as: none (0), once per week (3), twice per week (6), thrice per week (14), 4 times per week (22), or more than 4 days per week (30).

Eating Attitude Test (EAT-26) [16] – The Eating Attitude Test (EAT) was used as it is one of the most widely used self-report eating disorder instruments to date. The 26-item version (a variant of the original 40-item questionnaire) was used in the study as it was highly reliable and valid. The responses ranged usually from 'always' to 'never'. The scoring was done in the following manner – always = 3, usually = 2, often = 1, sometimes, rarely, never = 0. All the scores were summed up and it produced a possible range of 0 – 78 with score higher than "20" indicating eating disorder. With the scoring of these 26 items, BMI is also important to assess the eating disorder. If subject is "underweight" according to age/gender matched norms, it is an important risk factor for a serious eating disorder. There were also 4 behavioral questions indicating the presence of extreme weight-control behaviors as well as providing an estimate of their frequency. If any of the 4 items scored 'yes', then there was increased risk for eating disorder.

Ethical considerations

Prior to inclusion in the study, all patients were asked to sign an informed consent form containing the objectives of the study. All participants were informed of the purpose of the research project and were given guarantees of confidentiality and anonymity by the research team. The instruments included in the research protocol were applied individually and data were collected by the researcher.

Statistical analysis

Data were entered into the Statistical Package for the Social Sciences (SPSS) version 17.0 (IBM Corporation). Descriptive and inferential analyses were conducted using one-way ANOVA.

RESULTS AND DISCUSSION

Figure 1 shows that the adolescents & children consume more fast food per day of week compared to the adult group.

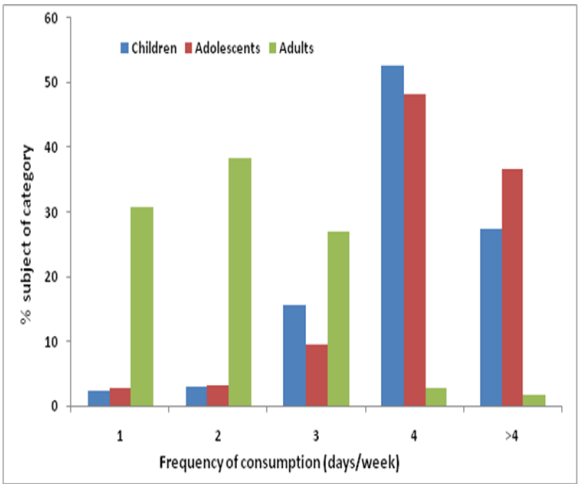

Figure 1. Frequency of consumption of fast foods in different participating groups

Most of the adolescents and children consume fast food for at least 4 day/week or more. On the other hand, the adults consume less fast food than the other two groups. High consumption rate of fast foods among the young subjects is a growing problem in urban and rural India, as revealed by a study where it was shown that *ca.* 97% of adolescent boys consume fast

food and *ca.* 14% consume it daily. [17] Recent studies suggested that the behavior of individuals towards the drive for fast food is affected not only by personal characteristics (e.g., age, gender, genetic profile) but also by interactions with larger social, cultural, and environmental contexts. [18] A previous research also supported an association between the taste preferences and fast-food consumption among adolescents; moreover, other attitudes such as convenience and health may influence food choices. [19] All these factors might influence the inclination of the young generation towards fast foods despite the fact that the subjects reside in a rural area, where access towards modernized lifestyle is very limited.

Consumption of fast foods in high rates also affected BMI rate and caused eating disorder as was evident from the following results.

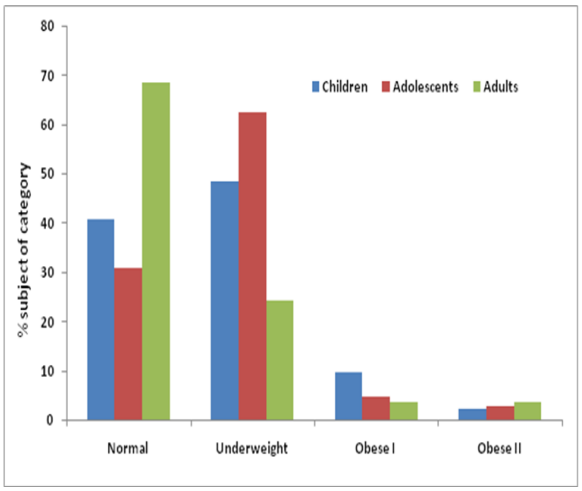

Figure 2. Classification of male subjects of different participating groups according to their body mass index.

A study conducted with the male population of a district of West Bengal (North 24 Parganas) revealed that frequency of overweight was 29.33%, which was alarming. [20] People of that region do not take active part in activities like farming and fishing. The study also revealed that the prevalence of obesity was not at par with the male population of other regions of India. In our study, we found that the prevalence of obesity became very less in all age groups of males, who are engaged in green activities like farming and fishing. Lesser frequency of obesity in the young school going male population in our study also corroborates with a previously established data collected from school-going young people of West Bengal. [21]

Similarly, data was analyzed for the female subjects and the following is the result –

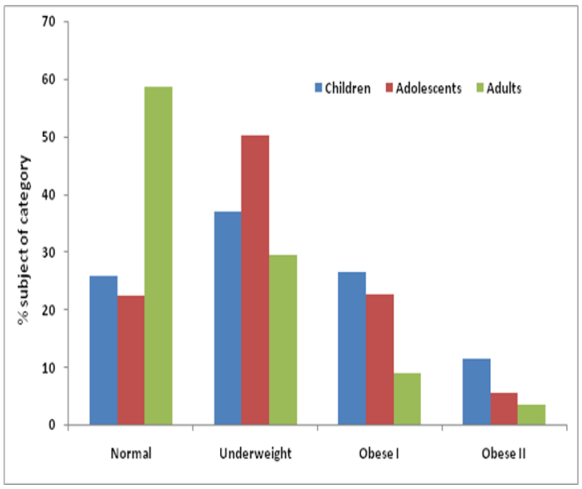

Figure 3. Classification of female subjects of different participating groups according to their body mass index.

The result clearly indicated that obesity was prevalent among the women in comparison to men, probably due to not directly participation of them in the field works. Moreover, young subjects were more inclined towards consumption of fast foods, as depicted in Figure 1, which might have some effect on this issue.

Eating disorder among the different groups are depicted in Figure 4 –

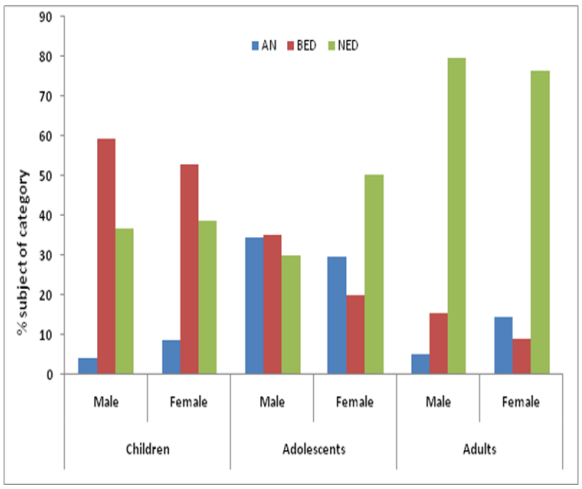

Figure 4. Occurrence of eating disorders in the subjects of different participating groups according to gender.

The above figure indicated that anorexia nervosa was prevalent among the adolescents (*ca*. 34% boys and 30% girls). This might be due to the exposure to the modern social media which preaches about the effects of obesity upon physical characteristics. This has also been substantiated by the fact that *ca*. 50% of the adolescent girls were underweight (Figure 3). This has been commensurate with a previous cross-sectional survey, where it was reported that about 27% of adolescent Indian girls among 120 surveyed showed disturbed eating behavior and were underweight. [22] Again, studies worldwide have reported that adolescent girls are interested in losing weight and more than 40% have even tried to lose weight due to apprehension over their body weight. [23]

On the other hand, higher proportion of children were suffering from binge eating disorder (i.e. non-specific eating disorder), as was depicted in Figure 4. This commensurate with earlier reports, where it was established that prevalence of BED in children was more than anorexia or bulimia. [24] The knowledge about prevalence, risk factors, clinical correlations and treatment of such disorders, however, is incomplete. [25]

The result depicted in the above table also clearly commensurate with the fast food consumption pattern of the subjects as furnished in Figure 1. Children and the adolescents consumed more fast food in the study regime, which was reflected in their BMI and eating disorders. Frequency of consumption of fast food by the seniors was less, which was reflected in their BMI as most of the adults were normal. One plausible reason of the healthy living of the adults might be their direct engagement in the green activities.

CONCLUSION

The present study indicated that there could be a correlation between fast food consumption with eating disorders in people of a district of West Bengal involved in green activities like farming and fishing. It was observed that tendency of consumption of fast foods was more in adolescents and children (4 to 5 days/week) than the adults (mostly 1 to 2 days/week). Obesity was not prevalent among the subjects, although proportion of obesity was more in female (*ca*. 30%) than male (*ca*. 10%) in children and adolescent segments. Binge eating disorder was prevalent in children and adolescents of both sexes, which might have some correlation with fast food eating frequencies. Adults mostly were devoid of eating disorders. However, analyses of body mass index revealed that mostly the subjects, irrespective of age and sex, were not obese, probably due to participation in the green activities, directly or indirectly.

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