International Journal of Advanced Research in Biological Sciences
ISSN : 2348-8069
www.ijarbs.com

Review Article

Effect of fast food consumption on the body Mass Index status of Adolescent Girls - A Review

Dr.Vedavalli Sachithananthan*

Faculty of Public health, College of Health sciences, King Khaled University, Abha, Saudi Arabia.
*Corresponding author: *dr_vedavalli@yahoo.com*

Abstract

In the present world scenario, fast food attracts and influences everybody, especially adolescents and early adults. Many factors influence the consumption of fast foods. The ease of availability and purchase is one among them. Readiness to prepare and eat saves time. Hence these varieties of factors influences the adolescent to consume fast food. However, fast food is rich in salt and saturated fat and adds a very bad trend to the health of the people. In fact ; not only the adolescent, but many adults fall a prey to bad food habits and useless and harmful nutrients coming from the fast food. With this background in mind, an attempt has been made in this paper to study the relationship between fast food consumption and Body mass index (BMI) of adolescents.

Keywords: adolescents-fast food consumption-body mass index-saturated fat and salt intake.

Introduction

Fast food is a specific variety of convenience food which is commonly associated with a high energy density.

Fast food consumption is one of the factors which have been reported to cause obesity. The factors which influence fast food consumption are convenience, costs and menu choices and flavour and taste. Restaurant and fast food consumption, large portion size and beverages with sugar are positively associated with overweight and obesity. The relationship between fast food consumption and BMI has been well established, although the mechanisms have not been well understood (1).

Review

In a cross sectional survey conducted among girls aged 13 to 18 in Jeddah, 24% were overweight or obese and 14% were underweight (2). In 2010, 43 million children (35 million in developing countries) were estimated to be overweight and obese; 92 million were at risk of overweight.(3) The consequential health risks of obesity among adolescents include asthma, hypertension, type 2 diabetes, cardiovascular disease, depression and excess mortality in adulthood (4,5). Most cross-sectional studies that have examined the association between fast food consumption combined with increasing portion sizes and decreased physical activity and measures of obesity in children and adolescents has been implicated as a potential contributing factor in the obesity crisis (6-11).

Fast food consumption spread out rapidly in last ten years especially between teenagers and youth. The results from many studies showed that fast food consumption was higher among children and adolescents, young adults and people with higher income (12). Fast food consumption leading to excess calorie intake coupled with lack of adequate physical activity has increased the risk of obesity among the world population for the past few decades.(13)

Physical activity is a major determinant of health and when it exceeds the minimum recommended amount, it helps in improving physical fitness, reducing the risk of chronic diseases and disability and in preventing unhealthy weight gain (1).

One study found that high BMI was significantly associated with evening and night time fast food eating. (1) In the same study, 90% students were having fast food in their diet, but only 22.45% and 9.52% were found to be pre obese and obese respectively. On the same side, more frequency of fast food in a week and less physical exercise were significantly related to high BMI. So, in conclusion, there is a significant relationship between BMI and fast food consumption, along with less physical activity and intake of soft drinks (14).

There is no significant relationship between fast food consumption, BMI and the pattern of consumption of fast food. There is a significant ($p<0.05$) positive relationship between increase in size of fish sandwich meal and increase of BMI. However there is no significant relationship between portion size of other food types and BMI (15).

College's students are highly exposed to unhealthy eating habits leading to body weight gain (Huang et al., 2003) (16). It has been suggested that fast food may encourage soft drink consumption and associated with low intake of vegetables, fruits and milk in both adults and children (17). However, we found that there is a significant ($p<0.05$) positive relationship between university study level and the knowledge in explaining why fast food is unhealthy. Also there was no observed significant relationship between family income and each of; the amount of consuming fast foods, the frequency of consumption and BMI (15).
The frequent consumption of fast foods is one of the main reasons for high intake of saturated fatty acid and trans fatty acids which partially come from using hydrogenated vegetable oil (18). Frequency of consumption fast food was high among students as they consume fast food 1- 2 times per week. Also the study showed that college students consumed unhealthy food. We suggest that if it is necessary to eat fast food, then choosing the lower fat items that are available at many fast food locations may help in reducing the excess energy intake associated with high-fat items (15).

Fast food, usually sold at eating establishments for quick availability or takeout has been become popular among young population in recent years. Increases in fast food consumption among young adults may contribute to increasing obesity rates worldwide to become a global concern (19-22), as excessive consumption during the transition to adulthood is associated with increased weight gain from adolescence to adulthood (23). Another cross-sectional study showed that adults and children who reported eating fast food had higher intake of energy, fat, saturated fat, sodium, carbonated soft drink, and lower intake of vitamins A and C, milk, fruits and vegetables than those who did not report eating fast food ($P<.001$) (22).

In the USA, Minnesota residents reported a positive association between increased frequency of fast food consumption and BMI (24). In a survey, after 3 years observation, it was reported that, increases in frequency of fast food restaurant use were associated with increases in body weight and total energy intake (25) In Bangladesh, overweight and obesity coexisted with malnutrition among children and adolescents. Multiple factors such as rapid urbanization, inappropriate dietary practices, continually decreasing number of playgrounds, probably have lead to less physical and more sedentary activity, and thereby have attributed to an emerging overweight and obesity problem among young children in urban settings, especially among affluent families in Dhaka (26).

Learning life-long habits that incorporate exercise and healthy eating are essential and research is emerging regarding various methods of educating youth with a view to control the epidemic of overweight and obesity (4).

The transition of young people from school to university has many health implications. Food choice at the university can differ because of childhood food consumption patterns, sex and the living arrangements. Food consumption may change especially if students are living away from home (27) In a study conducted in Poland, Denmark, Bulgaria and Germany, food consumption patterns differed across the studied countries, with females typically making more healthy choices. Differences between students living at parental home and not were

relatively homogenous across the countries, i.e. despite differences in background patterns of food consumption leaving parental home is associated with specific patterns of food consumption (28).

Besides type and amount of food consumed, frequency of eating individual food types may also contribute to weight gain as a parameter of eating behavior (29). In Turkey, the frequency of overweight/obesity is gradually increasing among fresher students (30). However, female subjects included in this study had lower BMI than male subjects based on their self-reported body weight and height data. This relatively low rate of increased BMI among female students may be explained by low food consumption, possibly in an attempt to maintain an attractive body image resembling that of movie stars and fashion models appearing in media (31).

Although some controversy and uncertainty remain pertaining to the role of meat consumption on the risk for weight gain, meat consumption has already been linked to obesity and central obesity owing to the associated higher intake of total fat, saturated fat, and total calories. Increased intake of total fat and saturated fat seems to be the main cause of increased risk for central obesity (32). Eating regular meals may prevent snacking of energy-rich unhealthy foods between meals. On the other hand, the reduced thermic effect of food after irregular meal frequencies may lead to weight gain in the long term (33).

In a cohort study, older children who consumed fried foods away from home more frequently over a 1-year period were heavier and had greater total energy intake when compared with children with a low frequency of fried food consumption away from home (34). In another study, a significant relation was found between obesity/overweight and frequent consumption of fizzy drinks, tea, and coffee [35]. Individuals consuming high amounts of these sugared drinks may cause an increase in their body weight even if they decrease the consumption of other food items [5-34–36].

Conclusion

Identifying unhealthy habits would guide in the adoption of healthier feeding behaviors in this particular age group. However, health benefits of different patterns should be evaluated in further studies, taking into consideration not only the frequencies of certain food items but also the absolute amounts of consumption and body fat content (2). Hence initial, significant steps are needed by parents, schools, dieticians and other health professionals and policy makers to make healthful food choices especially in snacks which are available, identifiable, and affordable for Saudi adolescent girls to fight the problem of overweight and obesity (36).

References

1.Trushna Shah, et al., Assessment of Obesity, Overweight and Its Association with the Fast Food Consumption in Medical Students, J Clin Diagn Res. May 2014; 8(5):

2. Elham Al-Jaaly, Margaret Lawson and Therese Hesketh (2011). Overweight and its determinants in adolescents girls in Jeddah city, Saudi Arabia, *International Journal of Food, Nutrition and Public health*, Vol. 4, No. 2, 2011.

3. de Onis M, Blossner M, Borghi E: Global prevalence and trends of overweight and obesity among preschool children. Am J Clin Nutr 2010, 92:1257-1264.

4.Maffeis C1, Tato L. Long-term effects of childhood obesity on morbidity and mortality. Horm Res. 2001;55 Suppl 1:42-5.

5.Francis DK1, Van den Broeck J, Younger N, McFarlane S, Rudder K, Gordon-Strachan G,et_al. Fast-food and sweetened beverage consumption: association with overweight and high

waist circumference in adolescents. Public Health Nutr. 2009 Aug;12(8):11-14.

2009 Feb 26.

6. Schroder H1, Fito M, Covas MI; REGICOR investigators. Association of fast food consumption with energy intake, diet quality, body mass index and the risk of obesity in a

representative Mediterranean population. Br J Nutr(2007) (6):1274-80.

7.Fraser LK, Edwards KL, Cade JE, Clarke GP. Fast food and obesity: a spatial analysis in a large United Kingdom population of children aged 13-15. Am J Prev Med. 2012 May;42(5):e77-85. doi: 10.1016/j.amepre.2012.02.007.

8. Satia JA1, Galanko JA, Siega-Riz AM. Eating at fast-food restaurants is associated with dietary intake, demographic, psychosocial and behavioural factors among African Americans in North Carolina. Public Health Nutr. 2004 Dec;7(8):1089-96.

9. Fleischhacker SE1, Evenson KR, Rodriguez DA, Ammerman AS. A systematic review of fast food access studies. Obes Rev. 2011 May;12(5):e460-71.
10. Bowman SA1, Vinyard BT. Fast food consumption of U.S. adults: impact on energy and nutrient intakes and overweight status. J Am Coll Nutr. 2004 Apr;23(2):163-8.
11. Ryan T. Hurt, MD, PhD, Christopher Kulisek, MD, Laura A. Buchanan, MD, and Stephen A. McClave. The Obesity Epidemic: Challenges, Health Initiatives, and Implications for Gastroenterologists. Gastroenterol Hepatol (N Y). Dec 2010; 6(12): 780–792.
12. Pereira, M.A, A.I. Kartashov, C.B. Ebbeling, L. Van Horn, M.L. Slattery, D.R. Jr. Jacobs and D.S. Ludwing, 2005. Fast food habits, weight gain and insulin resistance (the CARDIA study): 15 year prospective analysis. The Lancet, 365: 36-42.
13. Shatabdi Goon, Munmun Shabnam Bipasha, Md. Saiful Islam (2014) Fast food consumption and obesity risk among students of Bangladesh, European journal of Preventive medicine, Vol.2, No.6, 99-104.
14. Rolls BJ, Roe LS, Meengs JS. Larger portion sizes lead to a sustained increase in energy intake over 2 days. J Am Diet Assoc. 2006;106:543–9.
15. Hanan A. Alfawaz (2012) The Relationship Between Fast Food Consumption andBMI among University Female Students, Pakistan Journal of Nutrition, Vol.11, No.5, 406-410.
16.Huang, T.T., K.J. Harris, R.E. Lee, N. Nazir, W. Born and H. Kaur, 2003. Assessing overweight, obesity, diet and physical activity in college students. J. Am. Coll. Health, 52: 83-86.
17. Paeratakul, S., D.P. Ferdinand, C.M. Champagne, D.H. Ryan and G.A. Bray, 2003. Fast food consumption among U.S adult and children: Dietary and nutrient intake profile. J. Am. Diet. Assoc., 103: 1332-1338.
18. Mario Fernandez P. and S. Juan (2000) Fatty acid composition of commercial Spanish food and snack food. Journal of food composition and analysis,Vol.13, 275-281.
19.R W Jeffery and S A French. Epidemic obesity in the United States: are fast foods and television viewing contributing? American Journal of Public Health. Feb 1998, 88(2):277-280.
20. Garcia G1, Sunil TS, Hinojosa P. The fast food and obesity link: consumption patterns and severity of obesity. Obes Surg. 2012 May;22(5):810-8.
21. Fraser LK1, Clarke GP, Cade JE, Edwards KL. Fast food and obesity: a spatial analysis in a large United Kingdom population of children aged 13-15. Am J Prev Med. 2012
May;42(5):e77-85.
22. Anderson B1, Rafferty AP, Lyon-Callo S, Fussman C, Imes G.Fast-food consumption and obesity among Michigan adults.
Prev Chronic Dis. 2011 Jul;8(4):A71. Epub 2011 Jun 15.
23. Niemeier HM1, Raynor HA, Lloyd-Richardson EE, RogersML, Wing RR. Fast food consumption and breakfast skipping: predictors of weight gain from adolescence to adulthood in a nationally representative sample. J Adolesc Health. 2006 Dec;39(6):842-9. Epub 2006 Sep 27.
24.Robert W Jeffery, Judy Baxter, Maureen McGuire, and Jennifer Linde1 Are fast food restaurants an environmental risk factor for obesity? Int J Behav Nutr Phys Act. 2006; 3: 2.
25. French SA1, Harnack L, Jeffery RW. Fast food restaurant use among women in the Pound of Prevention study: dietary, behavioral and demographic correlates. Int J Obes Relat Metab Disord. 2000 Oct;24(10):1353-9.
26.Ahmed SMM, Islam MS, Razzaque A, Ahmed T: Socioeconomic differentials of childhood obesity among school children in the context of affluent society of Dhaka City. In 11th Annual Conference (Scientific ASCON). Dhaka, Bangaldesh: icddr,b; 2007:129.
27. Fatma Esra Gunes, PhD, Nural Bekiroglu, PhD, Nese Imeryuz, MD, Mehmet Agirbasli, MD.Relation between Eating Habits and a High Body Mass Index among Freshman Students: A Cross-Sectional Study, Journal of the American College of Nutrition, Vol. 31, No. 3, 000–000 (2012)
28. Walid El Ansari, Christiane Stock and Rafael T Mikolajczyk (2012).Relationship between food consumption and living arrangements among University students in four European countries-A cross sectional study, Nutrition Journal, Vol.11, No.28.
29. Gores SE: Addressing nutritional issues in the college-aged client: strategies for the nurse practitioner. *J Am Acad Nurse Pract* 2008, 20:5-10.
30. Bas M, Altan T, Dincer D, Aran E, Kaya HG, Yuksek O: Determination of dietary habits as a risk factor of cardiovascular heart disease in Turkish adolescents. *Eur J Nutr* 2005, 44:174-182.
31. Sakamaki R, Amamoto R, Mochida Y, Shinfuku N, Toyama K: A comparative study of food habits and

body shape perception of university students in Japan and Korea. *Nutr J 2005*, 4:31.

32. Kafatos A, Verhagen H, Moschandreas J, Apostolaki I, Van Westerop JJ: Mediterranean diet of Crete: foods and nutrient content. *J Am Diet Assoc* 2000, 100:1487-1493

33. Osler M, Heitmann BL: The validity of a short food frequency questionnaire and its ability to measure changes in food intake: a longitudinal study. *Int J Epidemiol* 1996, 25:1023-1029.

34.Lee RL, Loke AJ: Health-promoting behaviors and psychosocial well-being of university students in Hong Kong.*Public Health Nurs* 2005, 22:209-220

35.Young EM, Fors SW: Factors related to the eating habits of students in grades 9–12. *J Sch Health* 2001, 71:483-48.

36.Vedavalli Sachithananthan and Wedad Flyyh Mtlk Al Rashedi (2014). A Study of the Prevalence of Overweight and Obesity in Adolescents and Early Adults Aged 19 to 24 Years and its Relationship to Lifestyle and Dietary Attributes, (2014)American Journal of Ethnomedicine,, Vol. 1, No. 1, 030-035.,