

IMPACT OF FAST FOOD ON DEPRESSION IN THE ADOLESCENT POPULATION

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ABSTRACT

Depression In adolescence is linked with a range of adverse outcomes and substantial risk for morbidity and mortality across the life span. Fast food is a common element of many adolescent's diets. This leads to pediatric obesity and the consequence could be increased risk of depression. A diet high in sodium could develop symptoms of depression in early adolescence and that diet could be a modifiable risk factor for depression in adolescent patients. The aim of the study is to evaluate the association between fast food intake and mental health in the adolescent population. An online questionnaire was prepared and circulated among the adolescent population. The sample size is 100. The data was tabulated and then imported to SPSS software by IBM and the statistical Chi square test was done. Out of 100 adolescents, 71% were females and 29% of them were males. 81% of them follow a mixed diet. 90% of the adolescents consume fast food. The prevalence of consumption of fast food is much higher in the adolescent population. Out of various types of fast foods, the prevalence of consumption of sweets is much higher in the adolescent population. And most of the adolescents consume fast food thrice a week.

KEY WORDS: Adolescents; Consumption; Depression; Fast food; Health.

INTRODUCTION

Adolescence is a time of growth and change. Diet and Nutrition are particularly important during this period. By observing and understanding how diet and nutrition play a part in an individual's physical and mental health, modifications can be made to significantly improve one's quality of life (Sandler, 2002). Mood swings during adolescence are partially due to biology (American Psychiatric Association, 2013). Hormonal shifts that occur during puberty play a major role. Adolescents experience irritability, intense sadness, and frequent frustration (Goodyer, 2003).

Behaviorally, adolescence is associated with volatile emotions and boundary-testing behavior as individuals explore and assert personal identity, learn to navigate peer relationships and transition to Independence (Johnson, 2010). To date, much of the research has been surrounding behavioral outcomes of dietary intake or strict diet. But this has given little to no attention (French *et al.*, 2001). There have been several studies regarding the impact of diet and nutrition on adult mental health disorders such as anxiety and depression (Bamber, Stokes and Stephen, 2007).

Typically adolescent diets are characterized by health compromising eating patterns such as skipping meals, dieting inappropriately, and relying on sugar sweetened beverages, energy snacks, etc. A diet with

improper nutrition can play a major role in the onset, severity and duration of depression (Weng *et al.*, 2012). Most adolescents consume diets that are too high in fats, cholesterol, sodium and sugar. Hence there is an increase in the chance of systemic disorders and type 2 diabetes (Tomlinson, Wilkinson and Wilkinson, 2009). The use of caffeine as well as processed and refined foods, which have least nutritional value, can increase anxiety and depression (Soh *et al.*, 2009).

Adolescence is therefore a critical period for both diet and nutritional education to establish healthy eating patterns and reduce the risk of diseases (DePoy and Gilson, 2011). Depression is typically thought of as a strictly- biochemically- based or emotionally rooted disorder. It is a psychiatric disorder where there is a change from pleasant to unpleasant moods (Jacka *et al.*, 2011). Adolescent depression is a persistent and common mental health disorder that has several personal and social costs. These costs include self-harm, substance use, declining academic performance and suicidality (Kulkarni, Swinburn and Utter, 2015). Possible causes include a combination of biological, psychological and social sources of distress (Egger, Binns and Rossner, 2010). Effective community approaches to prevent depression include school-based programmes to enhance a pattern of positive thinking in adolescents (Mullen, 2018). Interventions for parents of children with behavioral problems may reduce parental depressive symptoms and improve outcomes for their children (Oddy *et al.*, 2009).

Previously we have worked on bioinformatics studies (Johnson *et al.*, 2020), (Sekar *et al.*, 2019), *in vivo* animal experimental studies (Seppan *et al.*, 2018), morphological and morphometrical studies (Krishna, Nivesh Krishna and Yuvaraj Babu, 2016), (Nandhini *et al.*, 2018), (Subashri and Thenmozhi, 2016), (Keerthana and Thenmozhi, 2016), (Pratha, Ashwatha Pratha and Thenmozhi, 2016), (Hafeez and Thenmozhi, 2016), (Choudhari and Thenmozhi, 2016), online survey studies (Sriram, Thenmozhi and Yuvaraj, 2015), (Thejeswar and Thenmozhi, 2015), (Menon and Thenmozhi, 2016), (Samuel and Thenmozhi, 2015) and genetic studies (Kannan and Thenmozhi, 2016) in various fields of research which helped us gain experience to work on the present study.

MATERIALS AND METHODS

An online questionnaire was prepared and circulated among the adolescent population. This questionnaire was prepared using a survey planet. The questionnaire consists of 12 questions. The sample size for the study was 100. It was an online setting where two reviewers are involved in this study for the validity checking of the questionnaire. The data was collected, verified, tabulated and analysed. All statistical analysis was done using SPSS by IBM. The statistical Chi square test was done, where if the p value is found out to be less 0.05, it is statistically significant. The data was imported to SPSS and the descriptive statistics with frequency analysis was done. The obtained data were represented graphically as bar charts. The dependent variables considered for the study are age, sex, occupation, type of food preferred and the independent variables are education, height and location.

RESULTS AND DISCUSSION

The data collected from the survey planet was tabulated in SPSS and the descriptive statistics were obtained. Out of 100 adolescents, 90% of them consume fast food and 10% of them do not consume fast food as depicted in Figure 1. In this study we observed that the consumption of fast food is higher in the adolescent population as shown in Figure 1. Consensually a study conducted by Rachel Samurlson, 2017 (*Website*, no date), stated that there was higher prevalence of consumption of fast food in the adolescent population. A number of factors contribute to the increasing popularity of eating out. Smaller families,

working mothers, more fast food outlets and increased advertising are some of them. Increased availability of food away from home may adversely affect the nutrition intake.

Out of all the effects of consumption of fast food, 37% of them had trouble in sleeping, 24% had worrying nature or fatigue, 17% had undergone depression, 14% had emotional distress and 8% showed violent behaviour as depicted in Figure 2. From the results, it is evident that the side effects of increased consumption of fast food were majorly trouble in sleeping, worries or fatigue and depression as shown in Figure 2. Consensually, the study given by Martinsen.EW,2008 (Martinsen, 2008), showed that the eating pattern shows a behavioral change in adolescents, and there is a high risk of depression in adolescents. This confirms the evidence of behavioral, psychological and emotional variations in adolescents. A diet high in processed foods and soft drinks may lead to troughs in blood sugar, with associated periods of hyperactivity and lethargy. Brains function best when we consume nutritious and balanced diets. High quality foods that contain antioxidants, vitamins and minerals nourish the brain and protect it from oxidative stress.

Out of the varieties of fast food, 71% of the adolescents consume sweetened food, 20% of them consume salty or spicy food and the rest 9% consume both the types of food, as depicted in Figure 3. Most adolescents prefer sweetened fast foods than salt or spicy foods. A study given by Jacka, et.al,2010 (Jacka *et al.*, 2010), proves that most of the children and adolescents are more likely to get addicted to sweetened food or beverages. Adolescents who consume more salty or spicy food show violent behavior and sweetened foods are more prone to caries. Hot and spicy food can make a person aggressive, hyperactive, short tempered and agitated. This study shows similar ethnicity with previously mentioned literature. Hence more studies should be done in larger populations so that we get results which are significant and reliable.

When the correlation was done between gender and the consumption of fast food, 90% of the adolescents consumed fast food. The statistical Chi square test was done and the p value was 0.033 which is statistically insignificant. Out of this 90% of adolescents, 61% of them were females and 29% of them were males. This showed that females consume more fast food than males as shown in Figure 4.

Frequency of consumption when correlated with the effects caused by fast food, all the adolescents who consumed fast food for thrice a week had trouble in sleeping. And adolescents who consumed fast food for once a week had depression with high prevalence followed by emotional distress as shown in Figure 5. The statistical Chi square test was done and the p value was 0.000 which is less than 0.05. This implies that it is statistically significant.

CONCLUSION

Within the limits of the study, it can be considered that the impact of fast foods in the adolescent population leads to depression and other side effects. The prevalence of fast food is much higher in the adolescent population. Most of the adolescents follow a mixed type of diet. Further researchers can be conducted to explore reasons and side effects of depression in adolescents due to the consumption of fast food.

AUTHORS CONTRIBUTIONS

B. Aishwarya Reddy: Author contributed in the conception, acquisition of data, analysis and interpretation of data, literature review, critical review, drafting the article and in writing the manuscript.

Dr. M. Karthik Ganesh: Author contributed in the design, revising it critically for important and intellectual content, final approval of the submitted version of the manuscript and supervision.

Dr. Nivethigaa. B: Author made formatting and other alignment corrections and supervision.

CONFLICT OF INTEREST

None declared

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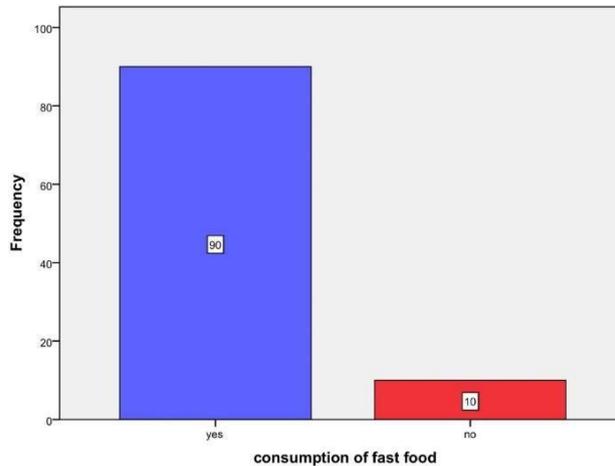


Figure 1: The bar graph shows the frequency of fast food consumption in adolescents on a scale of 1-100. Blue indicates consumption of fast food and red indicates no fast food consumption. X axis represents the prevalence of consumption of fast food and Y axis represents the frequency of number of adolescents.

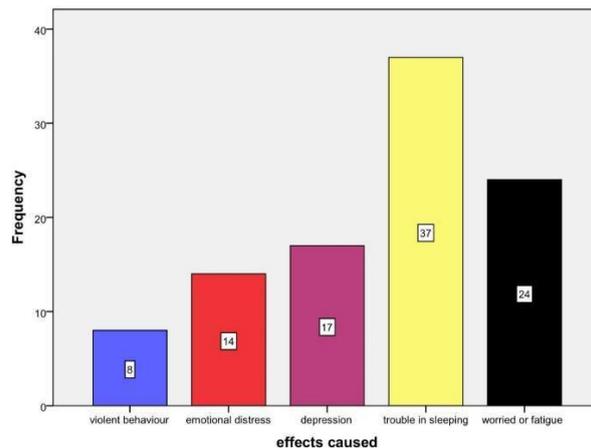


Figure 2: The bar graph shows the frequency of side effects caused due to the intake of fast food in a scale of 1- 100. Blue indicates violet behaviour, red indicates emotional distress, violet indicates depression, yellow indicates trouble in sleeping and black indicates worried or fatigue. X axis represents the various effects caused due to intake of fast food and Y axis represents the frequency of the number of adolescents consuming fast food.

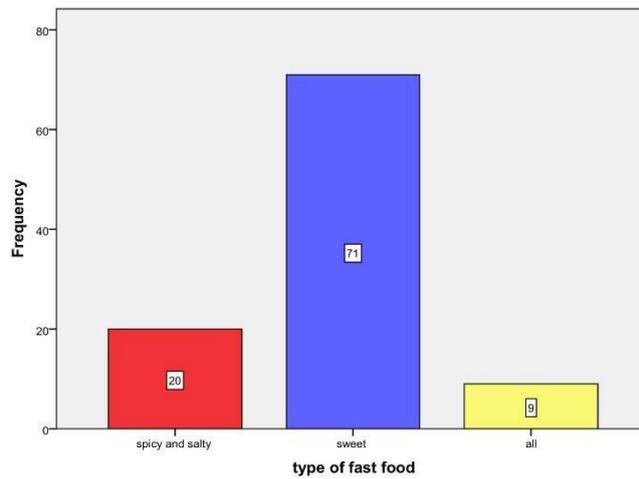


Figure 3: The bar graph showing responses to the question, “ type of fast food consumption” in the adolescent population on a scale of 1-100. Red indicates spicy and salty food, blue indicates sweet food and yellow indicates all types of food. X axis represents the type of fast food consumption in adolescents and the Y axis represents the frequency of the number of adolescents consuming fast food.

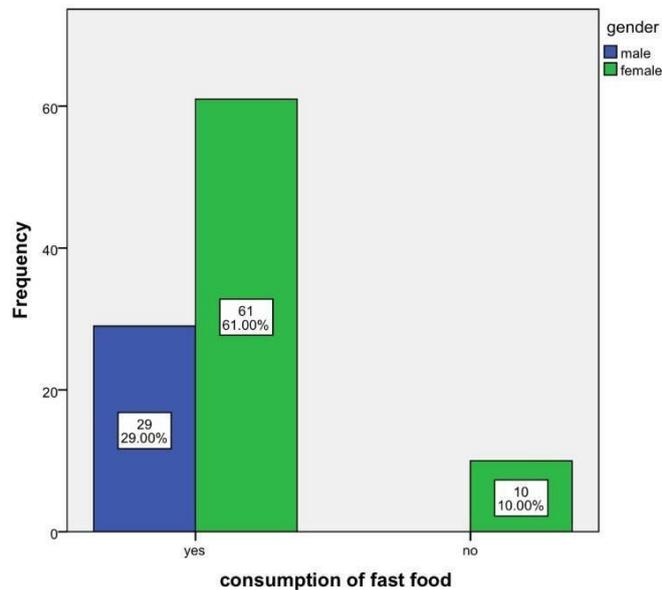


Figure 4: The bar graph represents the association between gender and the consumption of fast food on a scale of 1-100. Blue indicates males and green indicates females. X axis represents the prevalence of consumption of fast food in adolescents and Y axis represents the frequency of the number of adolescents consuming fast food. Chi square test was done and $P = 0.033$ which was statistically insignificant. There was no significant statistical difference between gender and consumption of fast food (Pearson Chi square test ; $P > 0.05$).

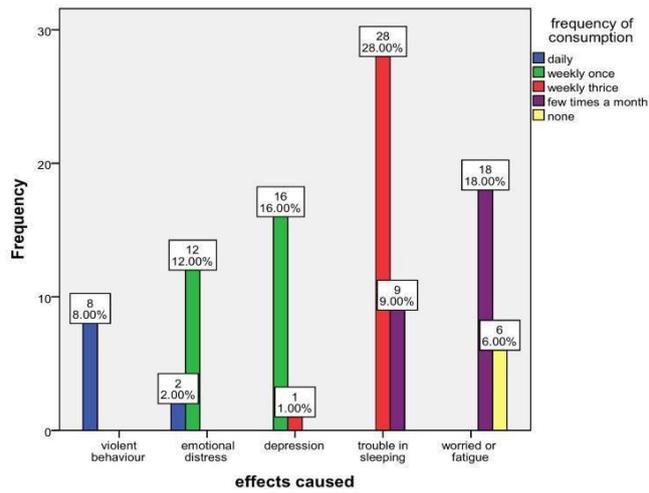


Figure 5- The bar graph shows the association between the effects caused due to consumption of fast food and frequency of consumption of fast food. Blue indicates daily consumption of fast food, green indicates weekly once consumption, red indicates weekly thrice consumption, violet indicates consumption only a few times a month and yellow indicates none. X axis represents the effects caused due to consumption of fast food and Y axis represents the frequency of the number of adolescents consuming fast food. Chi square test was done and $P = 0.000$ which is statistically significant. There was a significant statistical difference between the effects caused due to consumption of fast food and frequency of consumption of fast food(Pearson Chi square test; $P < 0.05$).