



A Study on Association between Dietary Eating Habits and Mental Health among Medical Students in Kancheepuram District, Tamil Nadu

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ABSTRACT

Background: Dietary practices have an important role in shaping our mental health which many of people are unaware due to paucity in research data. This study was done to assess the association between dietary eating and mental health among medical students in a private medical college.

Methods: This is a descriptive cross-sectional study done among 200 medical college students studying in private medical college selected by random sampling method. Data was collected using structured, validated questionnaire to assess the dietary eating habits and to assess the various factors of mental health, i.e., stress, depression and anxiety, using Depression, Anxiety and Stress Scale 21 (DASS-21).

Results: It was found that 36% were having a craving for junk food and frequent consumption of canned foods, frozen foods and fast foods were risk factors of depression. Anxiety was found to be associated with frequent fried foods consumption. Stress was found to be associated with consumption of canned/readymade foods.

Conclusion: This study concludes that students and their mental health are affected significantly by their dietary habits and food habits of students should be monitored and interventions, if necessary, should be given. More research is necessary to establish causal relationships.

Keywords: Depression, Anxiety, Stress, inflammatory diet

INTRODUCTION

Medical students undergo a lot of stress, because of the medical curriculum where both the academic and clinical demands are challenging to face. To maintain a good grades and academic results in a very competitive environment, the students are forced to make personal and social sacrifices, which in turn puts them under a lot of stress.^{1,2} Both the physical and mental wellbeing of the student is affected due to stress, anxiety and depression.^{3,4} Stressors like, aca-

demical and emotional factors influence and may alter the physiological and cognitive functions of the students.⁵

An eating habit is the way a person or group eats, considered in terms of what types of food are eaten, in what quantities and when they are eaten. An eating habit is said to be healthy or unhealthy mainly based on the type of food and the quantities. College students, especially medical students have lifestyles and dietary habits that differ from those of the gen-

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eral population, as the students generally prefer or rely on food or meals that they have easy access to and can be consumed quickly.⁵ Thus, the consumption of snacks and fast food is more common among the medical students because its more convenient.⁵⁻⁹ To make it even more unhealthy, many college students are forced to skip meals, compensate with unhealthy snacks and consume excess amounts of alcohol.¹⁰

With such a trend being watched all around the world, it is of significance to look at the influence that mental health and junk food have on each other and the medical as a whole, as they are the individuals in almost always stressed and at a higher risk of burn-out. With the above background, the study was conducted among medical college students with the main objective to find the association between dietary eating habits and mental health among the medical students.

METHODOLOGY

The study is a descriptive cross sectional study done among medical college students studying in a tertiary medical college in Kancheepuram district, Tamil Nadu.

Sample size: Since no relevant previous literature was found, null hypothesis was assumed there was no association between dietary eating habits and mental health and prevalence of mental health problems among those consuming unhealthy food was hypothetically assumed as 50% and applied in the formula $4PQ/L^2$, with an allowable error (L) of 15% of P. The calculated value was 176 and assuming 10% as non-response, was rounded off to 200.

Sampling Method: By random sampling method, 200 students were selected randomly from their registration numbers from the computer using lottery method.

Data Collection Tool: A pretested semi structured pre-tested questionnaire was used to collect socio-demographic details and dietary eating habits of the study participants. In order to assess the mental health status of the study participants, Depression, Anxiety and Stress Scale – 21 (DASS 21) scale was used. It is a validated questionnaire to assess depression, anxiety and stress among the study participants with various cut off scores grading them into mild, moderate, moderately severe and severe.¹¹ Data was collected by one to one interviews by a trained investigator.

Body Mass Index (BMI) was calculated by measuring the weight in Kg and dividing it by Height in m². It was classified according to the Asian Classification into Normal weight (18.5 – 22.9 kg/m²), overweight (23-24.9 kg/m²) and obese (>30 kg/m²)¹²

Data analysis: Data was entered in MS Excel and analysed by using SPSS version 22. Descriptive statis-

tics was used to represent frequencies in the form of tables. Chi-square test was used to find the association between dietary eating habits and mental health among the study participants with significance at 95% Confidence Interval.

Ethical approval and Informed Consent: Ethical approval was obtained from the Institutional Ethical Committee of tertiary medical college and informed consent was obtained from all the study participants before enrolling them in the study.

Operational Definition:

Vegetarian Diet: A Vegetarian diet is defined as a diet “consisting wholly of vegetables, fruits, grains, nuts, and sometimes eggs or dairy products”¹³

Non-Vegetarian Diet: Non-vegetarians are defined as those who consume all meats combined including fish at least once per week.¹⁴

Junk Food, Fast food: Junk food, fast food and trash food are all definitions of a quick, unhealthy, hunger satisfying food, which are easy to make and easy to consume. They tend to have low nutritive values but high number of calories and high amounts of refined sugars.¹⁵

Current Drinkers: Those who consume one or more than one drink of any alcohol in the year preceding the study.¹⁶

Current Tobacco Consumers: Someone who at the time of the study, smokes / uses tobacco in any form either daily or occasionally.¹⁶

RESULTS

The study done to find the association between dietary eating habits and mental health yielded interesting results which are presented below in the form of tables.

Table 1: Sociodemographic details of the study population

Variable	Frequency (%)
Sex of the participant	
Male	66 (33)
Female	134 (67)
Year of Study	
1 st Year	38 (19)
2 nd Year	32 (16)
3 rd Year	93 (46.5)
4 th Year	14 (7)
Internship	23 (11.5)
Hosteller	
Yes	134 (67)
No	66 (33)
Current Drinker	
Yes	21 (10.5)
No	179 (89.5)
Current Smoker / Smokeless tobacco user	
Yes	13 (16.5)
No	187 (93.5)

Table 2: Variables related to the dietary habits of the study participants

Variable	Frequency (%)
Type of diet	
Non-Vegetarian Diet	180 (90)
Vegetarian Diet	20 (10)
Type of Non-veg food items consumed (Multiple response)	
Red meat (Beef and Mutton)	129 (64.5)
Chicken	163 (81.5)
Egg	150 (75)
Sea Food	131 (65.5)
If Vegan, what are the reasons? (Multiple response) (n = 20)	
Ethical Reasons	11 (5.5)
Family origin	16 (8.8)
Spiritual Reasons	10 (5)
Source of money for fast food/Junk food	
Lie to parents and get money	9 (4.5)
Pocket money	191 (95.5)
Cravings for Fast food/Junk food	
Yes	72 (36)
No	128 (64)
Employment status of Mother	
Employed	69 (34.5)
Homemaker	131 (65.5)
Obesity (Asian Classification)¹²	
Obese	23 (11.5)
Overweight	70 (35.5)
Normal	107 (53.5)

In the study, a total of 200 participants were evaluated with the questionnaire, among which 66 (33%) participants were males and 134 (67%) participants were females. Around 67% (134) participants were hostilities and 33% (66) were day-scholars. It was found that 10.5% and 16.5% of the participants are

current drinkers and tobacco consumers respectively. (Table 1)

Regarding dietary habits, 90% of them consumed a mixed diet, with chicken (81.5%) being the most commonly consumed non-veg food item, whereas a total of 20 (10%) participants were vegans due to various reasons. Around 72 out of 200 (36%) participants have reported that they did have a craving for junk food. Taking into consideration the obesity status (Asian classification), 23 (11.5%) participants were obese, 70 (35.5%) were overweight and the rest (107, 53.5%) were normal. (Table 2)

Chi-square test was used to find the association between variables related to mental health, namely, depression, anxiety, stress, and related variables at 95% Confidence Interval. A statistically significant association ($P < 0.05$) was found between depression and gender, alcohol consumption, tobacco consumption, frequent consumption of canned and frozen foods. (Table 3). Anxiety was found to have a statistically significant association with tobacco consumption, and consumption of foods from fast foods and fried food items. (Table 4)

DISCUSSION

Due to the various types of foods and rapid developments in food industry, traditional food items are being avoided by most of the younger generation and they are consuming lot of junk foods, readymade canned foods and frozen foods which have a high palatability but low nutrition value and lot of ill effects to health.

Table 3: Association between dietary habits and Depression among the study participants

Variable	Depression		Total N = 200	Chi-Square	P Value
	Yes (n = 46) (%)	No (n = 154) (%)			
Sex of the participant					
Male	23 (34.8)	43 (65.2)	66 (33)	7.809	0.005*
Female	23 (17.2)	111 (82.8)	134 (67)		
Current Drinker					
Yes	11 (52.4)	10 (47.6)	21 (10.5)	11.437	0.001*
No	35 (19.6)	144 (80.4)	179 (89.5)		
Current Smoker / Smokeless tobacco user					
Yes	9 (69.2)	4 (30.8)	13 (6.5)	16.999	0.000*
No	37 (19.8)	150 (80.2)	187 (93.5)		
Type of Diet					
Mixed Diet	44 (24.4)	136 (75.6)	180 (90)	2.121	0.145
Vegan Diet	2 (10)	18 (90)	20 (10)		
Frequent Consumption of canned/readymade foods					
Yes	15 (40.5)	22 (59.5)	37 (18.5)	7.887	0.005*
No	31 (19)	132 (81)	163 (81.5)		
Frequent Consumption of Frozen foods					
Yes	15 (44.1)	19 (55.9)	34 (17)	10.315	0.001*
No	31 (18.7)	135 (81.3)	166 (83)		
Frequent Consumption of fried foods					
Yes	13 (31)	29 (69)	42 (21)	1.898	0.168
No	33 (21.9)	125 (79.1)	158 (79)		
Frequent consumption from fast foods					
Yes	13 (27.7)	34 (72.3)	47 (23.5)	0.753	0.385
No	33 (21.6)	120 (78.4)	153 (76.5)		

* $P < 0.05$, statistically significant at 95% Confidence Interval.

Table 4: Association between dietary habits and Anxiety among the study participants

Variable	Anxiety		Total (N = 200)(%)	Chi-Square	P Value
	Yes (n = 59) (%)	No (n = 141) (%)			
Sex of the participant					
Male	22 (33.3)	44 (66.7)	66 (33)	0.696	0.404
Female	37 (27.6)	97 (72.4)	134 (67)		
Consumption of Alcoholic Beverages					
Yes	10 (47.6)	11 (52.4)	21 (10.5)	3.704	0.054
No	49 (27.4)	130 (72.6)	179 (89.5)		
Consumption of Tobacco					
Yes	8 (61.5)	5 (38.5)	13 (6.5)	6.862	0.009*
No	51 (27.3)	136 (72.7)	187 (93.5)		
Type of Diet					
Mixed Diet	57 (31.7)	123 (68.3)	180 (90)	4.063	0.044*
Vegan Diet	2 (10)	18 (90)	20 (10)		
Frequent Consumption of canned/readymade foods					
Yes	14 (37.8)	23 (62.2)	37 (18.5)	1.518	0.218
No	45 (27.6)	118 (72.4)	163 (81.5)		
Frequent Consumption of Frozen foods					
Yes	14 (41.2)	20 (58.8)	34 (17)	2.685	0.101
No	45 (27.1)	121 (72.9)	166 (83)		
Frequent Consumption of fried foods					
Yes	19 (45.2)	23 (54.8)	42 (21)	6.332	0.012*
No	40 (25.3)	118 (74.7)	158 (79)		
Frequent consumption from fast foods					
Yes	20 (42.6)	27 (57.4)	47 (23.5)	5.033	0.025*
No	39 (25.5)	114 (74.5)	153 (76.5)		

*P < 0.05, statistically significant at 95% Confidence Interval

A lot of research is now being done to establish a causal relationship between dietary eating habits and mental health. This study was done with a similar objective, the results of which are discussed below.

From this study it was found that around 16.5% of the study participants consume fast food frequently. Similar results were obtained in a study done by Mahajan SA et al, in which 17% of the undergraduate students consume junk food and fast food at least once a day.¹⁷ Fast food and junk food items contain high amount of processed food items which consumed in the long run can cause chronic diseases like diabetes and hypertension. The participants who consume these food items daily are at increased risk for the same. Behavior Change Communication (BCC) activities must be carried out to educate the students as part of primary prevention against various chronic diseases.

The findings of this study highlighted that one of the significant risk factors which was found to have association with depression which was consumption of canned/readymade/frozen and processed foods. Similar results were obtained in a study done by Adjibade et al in which it was found that avoiding processed and pro inflammatory foods like fried and processed foods is one of the most important prevention strategies to combat depression.¹⁸

A study done by Bergmans RS et al found similar findings.¹⁹ These findings suggest that eating anti-inflammatory diet rich in fruits and vegetables will play an important role in preventing mood related problems like depression and anxiety as evident from a study done by Emerson SD et al.²⁰ Similar results

were found in this study which showed a statistically significant association between consumption of fried foods and anxiety. A study done by Parletta N et al found that, healthy dietary changes in people already suffering from depression can improve the mental health and wellbeing of them.²¹

It was found that, stress among the students was found to be associated with consumption of canned and readymade foods on a frequent basis. A study by Choi J. et al, showed that students with lower stress levels showed healthier dietary behaviours compared to those who had more stress.²² Debra A et al, in their study, report that under stress, not only do they increase their consumption, but also shift their food choice from lower fat to higher fat foods²³.

The practice of consuming these food items by the students would have had a detrimental effect on their health from their adolescent years, as many of them reported that they had this dietary practice was followed by them from their childhood and adolescent years. A study done by Wiles NJ et al found association between junk food and behavioral problems in children.²⁴ A study done by Zahedi H et al found association between junk food consumption and mental health among adolescents.²⁵

A study done by Park S et al found association between junk food consumption and attention deficit disorders and lethargy among children.²⁶ These highlight the fact that the health education must target not only the students but also their parents and caretakers as they are the persons responsible for the dietary pattern of their children at home.

CONCLUSION

The findings of the study quantify the fact that dietary habits which we follow in our everyday life can have a lasting impact on our mental health which may be attributed to various other physical and social problems. Though many other confounding factors may be present, it is the need of the hour to establish the causal relationship if any with the help of analytical studies done over a large population.

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