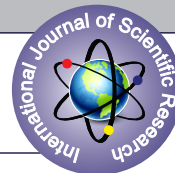


A STUDY ON ASSOCIATION BETWEEN DIETARY EATING HABITS AND MENTAL HEALTH AMONG MEDICAL COLLEGE STUDENTS OF WESTERN CITY OF GUJARAT



Community Medicine

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ABSTRACT

Background: Medical students are perceived to have high levels of stress throughout their undergraduate and the consumption of snacks and fast food is more common among medical students because it's more convenient. Due to the paucity of research data, many people are unaware that Dietary practices have an important role in shaping our mental health. This study was done to assess the association between dietary eating and mental health among medical undergraduate students. **Methods:** This descriptive cross-sectional study was conducted among 400 medical college students studying in a government medical college selected by random sampling method. Data was collected using a structured, validated questionnaire to assess the dietary eating habits and 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 41% were having a craving for junk food and frequent consumption of canned foods, frozen foods and fast foods were risk factors for depression. Anxiety was found to be associated with frequent fried foods consumption, current smoker and alcohol consuming students. **Conclusion:** This study concludes that students and their mental health are affected significantly by their dietary habits and the 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, inflammatory diet, smoking, Alcohol

INTRODUCTION

Medical students are perceived to have high levels of stress throughout their undergraduate curriculum.¹ Stress has been defined as the state of a body threatened by imbalance under the influence of agents or conditions endangering its homeostatic mechanisms.² Stressors like academic and emotional factors influence and may alter the physiological and cognitive functions of the students.³ The burden of studies, academic performance, and long duty hours tend to add to stress in various forms like anxiety and depression.⁴ Erratic eating habits and other lifestyle-related risk factors are mainly implicated in this increasing burden, and research related to these risk factors is essential, considering their role as future physicians and role models in public health intervention programs.⁵ Though eating habits are established early in life, eating habits change during college due to stress, financial problems, not living with their parents, and the unavailability of healthy food.⁶

Thus, the consumption of snacks and fast food is more common among medical students because it's more convenient. To make it even more unhealthy, many college students are forced to skip meals, compensate with unhealthy snacks and consume excessive amounts of alcohol.⁷

As medical students are individuals in almost always stressed and at a higher risk of burnout, it is significant to look at the influence that mental health and junk food have on each other and the medical as a whole, such a trend is being watched all around the world and there are very few studies related to this topic. 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 undergraduate medical students.

METHODOLOGY:

Study Design And Area:

Present study is a Cross-Sectional study undertaken in a medical college affiliated with a tertiary care centre in the urban city of Western Gujarat.

Study Participants:

are medical college students from first year to interns.

Inclusion Criteria:

- 1) Above 18 years of age.
- 2) Those willing to give informed consent.

Exclusion Criteria:

- 1) Below 18 years of age.
- 2) Those not willing to give consent.

Sample Size:

There was no previous literature found regarding studies in the area, the null hypothesis was taken as no association between unhealthy dietary habits and the prevalence of mental health problems among them. Thus, the prevalence of those taking unhealthy diet was considered as 50% and by the formula for calculation of sample size = Z^2pq/l where $p = 50\%$, $q = 100 - p$ and l is the error rate taken as the relative error rate of 10% calculated sample size comes out to 384, considering a non-response rate of 5% final sample size has been round off to 400. This 400 is divided equally among all 4-year batches and interns hence 80 students have been selected from each batch by Simple Random Sampling using their roll numbers by Random Number Table.

Data Collection Tool:

A pre-tested semi-structured questionnaire was used to collect sociodemographic data and dietary practices. To assess the mental health of the participants, the 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 severe⁸ BMI was calculated using the formula Weight (in kg)/Height (in meter²). The cut-off used for the BMI for obesity used was ASIAN Classification⁹

- 1) Severely underweight: $< 16.5 \text{ kg/m}^2$
- 2) Underweight: $16.5 \text{ to } 18.5 \text{ kg/m}^2$
- 3) Normal: $18.5 \text{ to } 23 \text{ kg/m}^2$
- 4) Overweight/Pre obese: $23 \text{ to } 24.99 \text{ kg/m}^2$

5) Obesity: >25kg/m²

Data Analysis:

Data was entered in MS Excel and was analyzed using SPSS version 26. The Chi-square test was used for detecting the association between dietary habits and mental health problems among students.

Criteria/Definitions:

- 1) **VEGETARIAN:** A person who does not eat meat or seafood because of religious reasons or he does not want to be cruel to animals¹⁰
- 2) **NON-VEGETARIAN:** A person who eats meat or fish or eggs at least once in a month¹¹
- 3) **CURRENT DRINKER:** Those who consume one or more than one drink of any alcohol in the year preceding the study¹²
- 4) **CURRENT TOBACCO USER:** Someone who at the time of the study, smokes/uses tobacco in any form either daily or occasionally¹³

Junk Food/fast Food:

Junk food refers to fast food, which is easy to make and easy to consume. They are low in nutritional value and have only lying fat in them causing ill effects on the health of consumer¹⁴

RESULTS

Table 1 Sociodemographic Details

VARIABLE	FREQUENCY (%)
A] SEX OF THE PARTICIPANT	
Male	126 (31.5%)
Female	274 (68.5%)
B] YEAR OF THE STUDY	
1st year	80 (20%)
2nd year	80 (20%)
3rd year	80 (20%)
4th year	80 (20%)
Intern	80 (20%)
C] HOSTELLER	
Yes	357 (89.25%)
No	43 (10.75%)
D] CURRENT DRINKER	
Yes	31 (7.75%)
No	369 (92.25%)
E] CURRENT SMOKER/SMOKELESS TOBACCO USER	
Yes	71 (17.75%)
No	329 (82.25%)

Table 2 Variables Related To The Dietary Habits Of The Study Participants

VARIABLE	FREQUENCY (%)
A] TYPE OF DIET	
Vegetarian	337 (84.25%)
Mixed	63 (15.75%)
B] OBESITY (ASIAN CLASSIFICATION)	
Obese	27 (6.75%)
Overweight	68 (17%)
Normal	305 (76.25%)
C] CRAVINGS FOR FAST FOOD/JUNK FOOD	
Yes	166 (41.5%)
No	234 (58.5%)
D] SOURCE OF MONEY FOR FAST FOOD/JUNK FOOD	
Pocket Money	363 (90.75%)
Lie to parents and take extra money	22 (5.5%)
Borrow from friends frequently	17 (4.25%)
E] TYPE OF NON-VEG FOOD CONSUMED (MULTIPLE RESPONSES)	
Eggs	312 (78%)
Meat	197 (49.25%)
Fish/seafood	135 (33.75%)
Any others	29 (7.25%)

Table 3 Association Between Dietary Habits And Depression In Study Participants

Study 1: Participants					
VARIABLE	DEPRESSION		TOTAL N = 400	χ^2	P-VALUE
	YES (N=79) (19.75%)	NO (N=321) (80.25%)			
A) SEX OF THE PARTICIPANTS					
60	International Journal of Scientific Research				

Male	36	90	126	9.03	0.002*
Female	43	231	274		
B] CURRENT DRINKERS					
Yes	12	19	31	7.62	0.005*
No	67	302	369		
C] CURRENT SMOKERS/SMOKELESS TOBACCO USERS					
Yes	33	38	71	38.91	0.00001*
No	46	283	329		
D] TYPE OF DIET					
Vegetarian	65	272	337	0.28	0.59
Mixed	14	49	63		
E] FREQUENT CONSUMPTION OF FRIED FOODS					
Yes	25	84	109	0.95	0.32
No	54	237	291		
F] FREQUENT CONSUMPTION OF FAST FOODS					
Yes	29	89	118	2.45	0.11
No	50	232	282		

Table 4 Association Between Dietary Habits And Anxiety In Study Participants

VARIABLE	ANXIETY		TOTAL	χ^2	P-VALUE
	YES N=129) (32.25%)	NO (N=271) (67.75%)			
A] SEX OF THE PARTICIPANTS					
Male	38	88	126	0.36	0.54
Female	91	183	274		
B] CURRENT DRINKERS					
Yes	19	12	31	12.97	0.0003*
No	110	259	369		
C] CURRENT SMOKERS					
Yes	32	39	71	6.49	0.01*
No	97	232	329		
D] TYPE OF DIET					
Vegetarian	111	226	337	0.46	0.49
Mixed	18	45	63		
E] FREQUENT CONSUMPTION OF FRIED FOODS					
Yes	45	64	109	5.59	0.01*
No	84	207	291		
F] FREQUENT CONSUMPTION OF FAST FOODS					
Yes	50	68	118	7.84	0.005*
No	79	203	282		

Out of the total 400 participants who participated in study 126 (31.5%) were male and 274 (68.5%) were female. The majority of them were staying in a hostel i.e., 357 (89.25%). 31 (7.75%) out of 400 were current drinkers and 329 (82.25%) were currently using tobacco in a smoked or smokeless form. (TABLE 1)

Most of the study participants were vegetarian in diet, 337 out of 400 (84.25%) and only 63 (15.75%) of them were non-vegetarian in the diet. According to the ASIAN obesity classification for BMI, 27 (6.75%) students were obese, 68 (17%) students were overweight and 305 (76.25%) students were normal in weight. A total of 166 (41.5%) students reported having cravings for junk food. Most of the students had enough pocket money to purchase fast food/junk food frequently (>2 times/week). (TABLE 2)

According to DASS-21 Scale, 79 (19.75%) students reported having depression in any form. A chi-square test was applied to detect any significant association between depression and various factors. A statistically significant association was found between Sex, Current drinkers and Current Smokers with depression as the calculated p-value was <0.05 in mentioned variables. (TABLE 3)

According to DASS-21 Scale, 129 (32.25%) students reported of having Anxiety. A chi-square test was applied to detect any significant association between anxiety and various factors. A statistically significant association was found between Current drinkers, Current smokers, frequent consumption of fried foods and frequent consumption of fast foods as the calculated p-value was found to be < 0.05 in mentioned variables. (TABLE 4)

DISCUSSION

Due to the various types of foods and rapid developments in the food industry, traditional food items are being avoided by most of the younger generation and they are consuming a lot of junk foods,

readymade canned foods and frozen foods which are easy to available have high palatability but low nutrition value and a lot of ill effects to health.

A lot of research is now being done to establish a causal relationship between dietary eating habits and mental health. As medical students are always under time constrain, they are more prone to unhealthy dietary eating habits. This study was done with a similar objective, the results of which are discussed below.

In this study, 31.5 % of the participants are male and 68.55% of the participant are female, similar to the study done by Shanmugapriya et.al⁷ in which a total of 200 participants were evaluated with the questionnaire, among which 66 (33%) participants were males and 134 (67%) participants were females. In this study, 89.25% of the participant are residing in the hostel which differs from a study by Shanmugapriya et.al⁷ where around 67% (134) participants were hostelites.

In this study, 17.75% of the participants are current smokers and a similar demographic profile is shown by a study done by Shanmugapriya et.al⁷ where 16.5% of the participants are current smokers.

from this study, it was found that around 29.5% of the study participants consume fast food frequently. Similar results were obtained in a study done by Shanmugapriya et.al⁷ in which 23.5% of participants were frequent Fast food consumers and this result differs from to study done by Mahajan SA et al, in which 17% of the undergraduate students consume junk food and fast food at least once a day¹⁵

The findings of this study highlighted that frequent consumption of fast food and fried foods is not significantly associated with depression in medical students and this result differs from 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 prevent-on strategies to combat depression¹⁶

Some other studies also differ from this study in the association of dietary habit and depression^{17,18} A study done by Bergmans RS et.al¹⁷ findings suggest that eating an 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 al¹⁸

This study shows that there is a significant association between the consumption of fried foods and anxiety. A similar result is found in a study done by Shanmugapriya et.al⁷ in which Anxiety was found to have a statistically significant association with the consumption of fast foods and fried food items. A study done by Parletta N et al¹⁹ found that healthy dietary changes in people already suffering from depression can improve their mental health and well-being of them.

CONCLUSION

The findings of the study quantify the fact that dietary habits mainly smoking and alcohol consumption and fast food consumption in our everyday life can have a lasting impact on our mental health. Behaviour Change Communication (BCC) activities must be carried out to educate medical students as part of primary prevention against various practices of consuming these food items and its detrimental effect on their mental health from their adolescent years.

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