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Stress Eating amongst Medical Students

Mantasha Shaikh[1], Dr Nisha Bellare[2]

1Masters in Dietetics and Food Service Management, Indira Gandhi National Open University, New Delhi, India

2Professor, Sir Vithaldas Thackersey College of Home Science (Autonomous), SNDT Women's University, Juhu, Mumbai-49, India
[1]*mantashashaikh1[at]gmail.com*
[2]*bellarenisha03[at]gmail.com*

Abstract: ***Background: Stress among medical students is believed to alter their eating behavior that results either in suppression of food intake or consumption of energy dense foods and infrequent daily meals.The aim of the study was to study the impact of stress on nutritional status and dietary habits among medical students. Methods: An observational study was conducted on 150 medical students aged between 20-36 years in two colleges and two hospitals of Mumbai suburb region. A self - reported close ended questionnaire was incorporated which consisted of anthropometry, dietary habits, Cohen's Perceived Stress Scale for stress assessment and Emotional Eating Questionnaires to assess the emotional eating behavior. Statistical Analysis: The data was analyzed using SPSS software version 20 for Windows. Results: Medical students reflected different kinds of emotional eating behaviors with a greater prevalence of happy eating followed by bored eating, anxiety eating, depressed and lonely eating. Most of the medical students were emotional eaters as the mean emotional eating score was 11.87 ± 4.71, a score that categorizes an individual as an emotional eater. The percentage of obese individuals was 53 % and that of overweight was 15 %. A positive co relation was found between emotional eating and BMI indicating that an individual's emotional eating pattern can have an impact on their nutritional status. A comparison between very emotional eaters and low or non emotional eaters showed that students who were very emotional eaters had a greater BMI. Also very emotional eaters consumed highest amounts of calories, carbohydrate, protein and fat as compared to non emotional eaters. Conclusion: Higher levels of stress and altered emotional eating behavior can negatively influence the nutritional status of a medical student over a period of time.***

Keywords: Emotional eating, stress, medical students

1. Introduction

Stress and its effects on psychological eating patterns and their manifestations have currently grown into a major concern amongst medical fraternity. Medical education is one of the most challenging and potentially demanding for students throughout the world. The level of academic stress and the other influencing factors have started to affect the mental status and psychologically affected their diet. Medical students transitioning from schools to universities experience difficulties adhering to healthy eating habits due to lack of time and stressors, and instead, they skip meals, eat unhealthy snacks, dine out, and consume fast food.

The study - stress eating amongst medical students, has been conducted amongst medical students in the suburban region of Mumbai. Similar studies on stress and behavioral changes and nutritional status were conducted in different countries throughout different continents. But this study was unique as different age group involving different sexes and students from different levels of their academics were selected as a study group and the co relation was determined between their stress and psychological eating patterns.

The study also aimed to gain focus on the knowledge and application of having healthy diet into practice amongst the medical students. Medical students are supposed to be pioneers in health care facility. The growing concern of diseases like obesity, cardiovascular diseases like hypertension, Diabetes mellitus amongst medical fraternity gives us an alarming indicator that the eating patterns and lifestyles and growing amount of stress has hampered healthy living amongst the trendsetters themselves. Young doctors are an important group to consider for interventions targeting obesity prevention since unhealthy behaviors acquired at this age may persist into older adulthood.

2. Methodology

An observational study was conducted on 150 medical students aged between 20-36 years in two colleges and two hospitals of Mumbai suburb region. A self - reported close ended questionnaire was incorporated which consisted of-

a) Anthropometry and 24-hour dietary recall.
b) Cohen's Perceived Stress Scale (PSS) for stress assessment - This included a set of ten questions. The final score obtained was used to determine the level of stress an individual had.
c) Emotional eating questionnaire 1 (EEQ1) to determine the emotional eating behavior- Frequency percentage of different types of emotional eating was developed by enumerating each emotion separately, responded by all the 150 participants.
d) Emotional Eater Questionnaire 2 (EEQ2)- this was a ten item questionnaire giving each individual a score. The lower the score, the healthier the behavior.

The different variables like emotional eating, perceived stress, dietary intake and nutritional status were associated with each other to find out possible co relations and interpret data. Frequency of consumption of different kinds of foods was also studied to understand the type of foods most commonly chosen by stressed medical students.

Statistical Analysis
Analyses were performed using SPSS software for Windows (version 20, 2017, IBM). Descriptive measures like mean, SD, and percentage were calculated. The one-way analysis

of variance (ANOVA) was used to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups like perceived stress score with BMI. Pearson's co relation at the level of significance ($p<0.01$) was used to co relate amongst the different variables like BMI and EEQ2 score.

3. Results

A total of 150 medical students were the participants of the present study. 42% students were males and 58 % of the students were females. The mean age of the participants was 27.04 years (SD ± 3.81) (Range 20-36 years). The mean BMI of the participants was 25.65 ± 5.72, with the minimum BMI being 13 kg/m^2 and maximum recorded being 42 kg/m^2. 53% (n = 79) of the participants were obese forming the majority of the study group. (Table 1)

Table 1: Socio demographic and anthropometric details

Age (years)	N (%)	BMI kg/m^2	N (%)	Mean ± SD
20-25	52 (34.7%)	< 18.5	17 (11%)	25.65 ± 5.72
26-30	70 (46.7%)	18.5 – 22.9	32 (21%)	
31-36	28 (18.7%)	23 – 24.9	22 (15%)	
Mean± SD	27.04 ± 3.81	>25	79 (53%)	
-	-	Total	150 (100%)	-
Gender	N=150	-	-	-
Male	63	-	-	-
Female	87	-	-	-

N = Frequency, % - percentages of the total frequency.

Emotional Eating Questionnaire 1

Figure 1 below, shows the frequency percentage of each of the following emotions- depressed eating, anxiety/stress eating, angry eating, bored eating, lonely eating and happy eating.

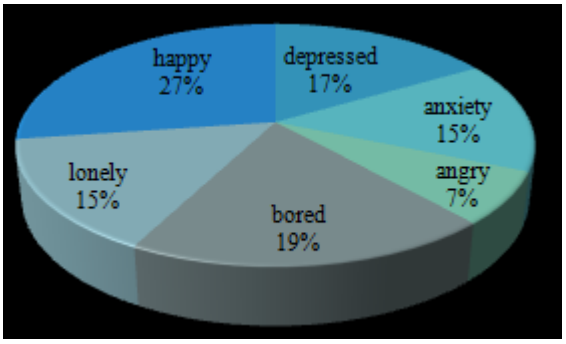

Figure 1: Frequency of types of emotional eating

Of all the types of emotional eating, happy eating was most reported while angry eating was least reported by the participants.

Emotional Eating Questionnaire 2 (EEQ2) & Percieved Stress Scale (PSS):

The results obtained from PSS showed that medical students suffer from considerable stress as the mean score of stress was 19.93 ± 6.40, a score categorized as moderate stress.

Table 2: Frequency of each emotional eater obtained from EEQ2

Category of emotional eater	N (%)
Non emotional eater	10 (6.7 %)
Low emotional eater	51 (34%)
Emotional eater	84 (56%)
Very emotional eater	5(3.3%)
TOTAL	150(100%)
Mean ± SD	11.87±4.71

N – frequency of participants, % - percentage of the total frequency.

According to table 2, majority of the participants (n=84) were emotional eaters. This helps to further reflect and investigate the effect of emotions on one'schoice of foods and eating habits.

Association between BMI, EEQ2 and PSS:

Table 3: Association between BMI, EEQ2 and PSS:

	BMI		PSS		N
	r	p-value	r	p-value	
EEQ2	0.445**	0.000	0.25**	0.002	150
PSS	0.13	0.09	-	-	150

- SD-standard deviation, r –Pearson's co relation, N- total frequency of participants.
- **Correlation is significant at the 0.01 level (2-tailed).

A significant association between the mean BMI and mean EEQ2 score was found. This shows that an individual's emotional eating pattern can have an impact on their nutritional status.

No significant association was found between the mean BMI and mean PSS score.

A significant association was observed between the mean EEQ2 score and the mean PSS score. With an increase in the level of stress, the individual was found to become more of an emotional eater.

Since emotional eating (EEQ2) was also found to be significant with an individual's nutritional status, it can be said that higher the level of stress, more the emotional eating and this results in an undesirable nutritional status of an individual over a period of time.

Association of BMI with EEQ2 scores and its comparison between emotional and non emotional eaters:

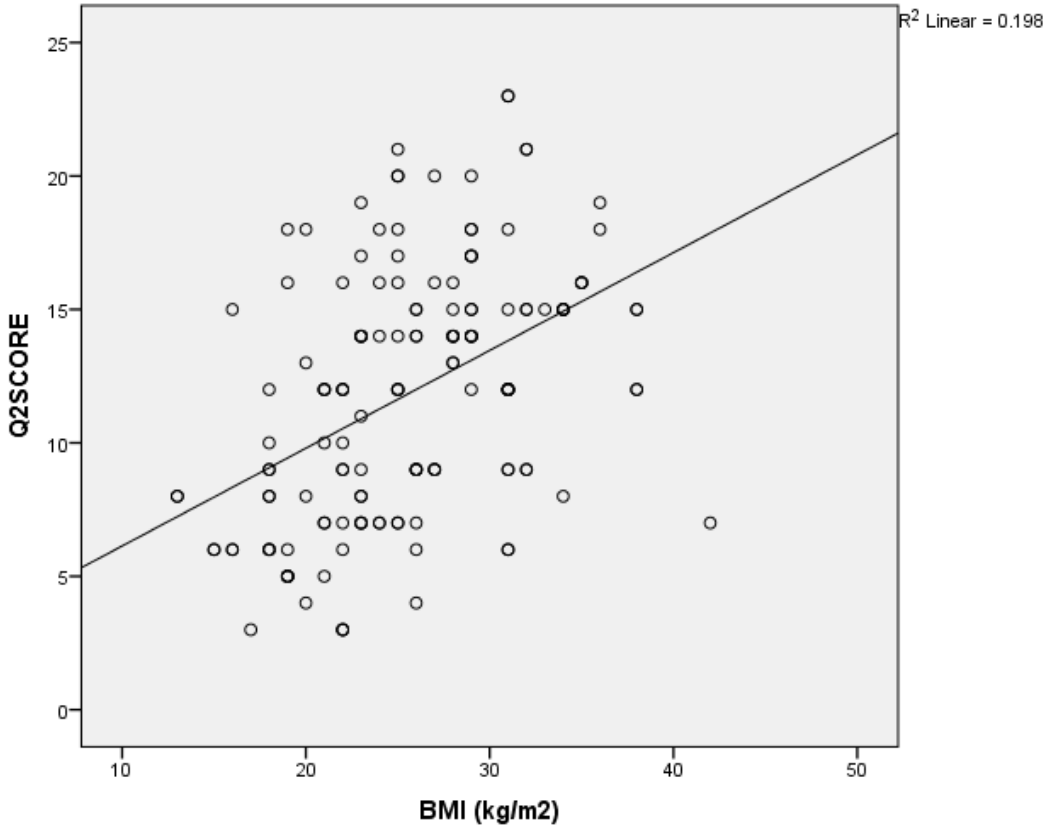

Figure 2: Association of BMI with EEQ2 Scores; N = 150

The results from figure 2 show a positive co relation between the two variables. With an increase in the EEQ2 score, there is also an increase in the BMI.

Individuals with lower scores in the EEQ2 questionnaire were classified as non or low emotional eaters while those with higher scores were classified as emotional or very emotional eaters. More the emotional eater an individual was, more the BMI was observed in the results. Subjects with lower EEQ2 scores had a normal or lower BMI.

Compared with non emotional eaters, emotional eaters had significantly a higher prevalence of overweight and obesity

Comparison between macronutrient intake of emotional and non emotional eaters

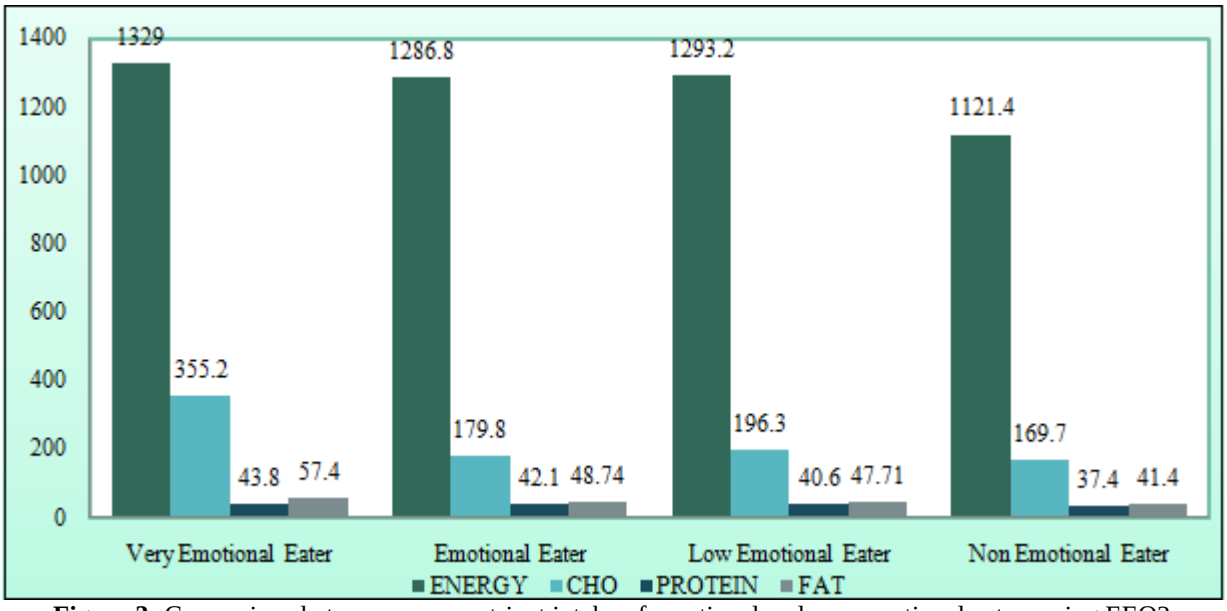

Figure 3: Comparison between macronutrient intake of emotional and non emotional eaters using EEQ2

From figure 3, it was observed that very emotional eaters tend to consume significantly higher amounts of energy, carbohydrates, protein and fat as compared to other types of emotional eaters.

4. Discussion

This study revealed that medical students reflected different kinds of emotional eating behaviors as an adaptation to different stressful situations during their educational courses. Of all the types of emotional eating, happy eating was most reported while angry eating was least reported by the participants.

Any other finding with such similarity was a rare entity to be studied and reported in the medical institutions in the suburban region of Mumbai. Thus this was a possible new innovation in this study.

The results of this study showed that most of the medical students were emotional eaters as the mean emotional eating score was 11.87 ± 4.71, a score that categorizes an individual as an emotional eater.

In this study the percentage of obese individuals was 53 % and that of overweight was 15 %.

A positive co relation was found between emotional eating and BMI in this study indicating that an individual's emotional eating pattern can have an impact on their nutritional status.

A comparison between very emotional eaters and low or non emotional eaters showed that students who were very emotional eaters had a greater BMI. This helps in reflecting upon the effect of emotional eating on nutritional status.

This study did not find any co relation between stress and BMI. This finding contradicts the findings of similar other studies which found strong associations between high stress levels and BMI. (Gupta S et al, 2009).

5. Conclusion

Higher levels of stress and altered emotional eating behavior can negatively influence the nutritional status of an individual over a period of time.

Daily stress is significantly associated with the trajectories of desire to eat and hunger eating motives. The consumption of comfort foods may lead to a more positive dispositional state which eliminate or reduce the intensity of negative emotional state. In the process, a large intake of calories takes place which invites overweight/obesity

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