

Assessment of Dietary habits and Nutritional Status of Undergraduate Medical Students at a Medical College of Telangana with special emphasis on Food Psychology , A Cross-Sectional Study.

**Munnaji Mavatkar ¹, Dr. Laxmipadmapriya ². A, Dr. V.Prathyusha ³,
Dr. Kiran Prakash K ⁴**

1. Assistant Professor, Department of Community Medicine, Government Medical College, Mahabubnagar, Telangana, India.
2. Assistant Professor, Department of Obstetrics & Gynecology, Government Medical College, Mahabubnagar, Telangana, India.
3. Assistant Professor, Department of Obstetrics & Gynecology, Mallareddy Medical College for Women, Hyderabad, Telangana, India.
4. Associate Professor, Department of Community Medicine, Government Medical College, Mahabubnagar, Telangana, India.

Corresponding author: Dr. Kiran Prakash K

ABSTRACT:

Background:

Inculcation of right dietary practices today has become an important part of lifestyle. A medical student develops a change in the behavioral attitude during his transition from high school to medical college. Assessing and maintaining right dietary practices will definitely help to build a good foundation as a future doctor.

Objective: Assessment of Dietary habits and Nutritional Status of Undergraduate Medical Students.

Methodology :

This is a cross-sectional study carried out on the undergraduate medical students of a Government Medical College. Total of 500 students from IInd, IIIrd and Final year MBBS Batch were selected. Information on dietary habits was retrieved through a questionnaire given to the student. Anthropometric measurement was taken with tools. Dietary profile was taken by 24 hrs dietary recall method.

Results:

Out of 500 students 482 students were available for data collection, 64% were females and 36% were males. About 26% of boys and 16% of girls were found to be Pre-Obese. About 13% of the girls were found to be Underweight. Consumption of fruits and vegetables on a daily basis was high among female students with p-value <0.05. The students showed a pertinent psychological behavior with respect to food habits such as overeating when lonely, having junk

food when having long screen time, and eating till the stomach is full showed statistically significant change ($p < 0.001$). The prevalence of Gastro-Intestinal symptoms was found high among girls which was statistically significant ($p < 0.05$). About 86% of the boys and 79% of the Girls showed Calorie intake below the recommended level.

Concluion: The Study show mixed results with some adverse dietary habits and food psychology among the medical students.

Keywords :

Food Habits, Food Psychological , Undergraduate Medical Students.

Introduction:

“Eat breakfast like a king, lunch like a prince, and dinner like a pauper.” – One of the famous quotes made by Adelle Davis. Globalization has resulted in the drastic change in the lifestyle of the people also it has caused an upscale in the multinational fast food chain making easy availability of food . This has immerged as new pandemic of faulty dietary practices.

There has been a drastic change in the lifestyle of a medical student when he enters into the medical college. Students in medical profession are under constant stress of examination. Moreover digitalization of education has increased the sedentary hours spend by them. Students are more susceptible to indulge in improper dietary habits, addiction and reduced physical activity^[1]. As per one of the study conducted in Tamil Nadu the medical students were experiencing higher stress and more so over stress was seen to be higher among females as compared to males^[2].

As per the Fact sheet released by World Health Organisation ,worldwide, 1 in 4 adults, and 3 in 4 adolescents (aged 11–17 years), do not currently meet the global recommendations for physical activity set by WHO. The levels of inactivity can be as high as 70%, due to changing patterns of transportation, increased use of technology and urbanization^[3]. This is moreover applicable for the medical profession students who spends most of the hours of the day in sedentary activities. As a result of this medical students are at high risk of becoming Overweight and Obese.

The Students of today are the Doctors of tomorrow .They advice healthy dietary practices to there patients. Also doctors follow hectic schedules that affects there physical and mental health status. Thus incorporating right dietary practices and

better lifestyle from student age will help them to set a good example amongst there patients.

As per some of the studies the students who stay in the hostel are away from there family have shown to be at high risk of practicing faulty dietary habits , lack of Physical exercise and addiction^[4,5].Thus studying these parameters among the medical students becomes important. As no such study has been conducted in the present study area we were interested in doing the situational analysis of the Medical Students in our college.

Objectives :

To determine the current dietary habits and nutritional status of Undergraduate medical students.

To determine the Food Psychology of students.

Methodology :

This is a cross sectional study conducted among the undergraduate medical students belonging to Government Medical College in Southern Telangana State.The study was conducted in the month June and August 2022. The participants belonged to the Batch of 2018,2019,2020 consisting of 500 students. About 482 study participants were available for the study.Consent form was signed from the student followed by which a predesigned semi-structuredquestionnaire was given. Prior guidance regarding the filling of information was given to them. The students having Chronic disease were excluded from the study.

The sample size (n) required for the study was calculated using the formula below .

$$n = m / 1 + m / N$$

$$m = [p \times (1-p) \times Z^2(1-\alpha/2)] / d^2$$

and N was the total number of medical students in second year,third year and Final year were 175,175 and 150 respectively (total = 500), P is the proportion of students with malnutrition (underweight, overweight or obese), ε the margin of error acceptable. We considered p = 0.5 (50%) which makes it possible to obtain a

maximum sample size, a precision $d = 0.05$ (5%) and $\alpha = 0.05$; the critical value resulting from the normal law was therefore $Z^2(1-\alpha/2) = 1.96$.^[8]

Thus sample size came out to be 224. But we have considered all students thus involving all the 500 students. By applying exclusion criteria one student with Type 1 DM was excluded. About 9 students belonged to supplementary batch were not available for study. About 8 students were absent on 3 consecutive days thus our final sample size came out to be 482.

Permission of the Institutional ethical committee was obtained (Rc No: GMCMBNR/IECMR/AP/2/11/2022. At all the levels of this study confidentiality, anonymity and privacy of all information were guaranteed to the participants. The survey was conducted among three batches of state-owned medical college. The Pre-designed, pre-tested, semi-structured questionnaire consists of following parts.

- 1) Demographic & Anthropometric data of the patients.
- 2) Dietary habits and Lifestyle related questions.
- 3) Food Psychology of the Students.
- 4) Currents Dietary Profile of the Students by 24 hrs dietary recall methods.

All students were contacted with the help of class representatives. We explained theme and Objectives of the study to the students. Special permission was taken from the principal for filling of questionnaire from all the batches on same day.

Tools for measuring weight and height were standardized weighing scale and stadiometer. Before the start of every session calibration of weighing scale was done. Waist Circumference was measured with the help measuring tape. The students were categorized as per WHO guidelines, as underweight <18.5 , normal 18.5 to 22.9 , OW 23 to 27.5 , and obesity >27.5 ^[6]. WC was measured in centimeters (cm) midpoint between the lowest ribs and anterior superior iliac spine at the end of normal expiration in a relaxed state^[7]. Any missing data students were contacted through the batch representatives and data was rectified.

Statistical Analysis :

All the data were entered into an MS -Excel sheet. Data Analysis was done in SPSS software version 20 (IBM SPSS Statistics for Windows, Armonk, NY: IBM Corp). For the given data we calculated Mean, Standard error of mean Sociodemographic factors, Food Frequency and Food Psychology related factors were studied for proportion, mean and Standard Deviation. To find association between categorical variables Chi square test was used and for continuous variable t test and ANOVA was applied for comparison between two groups. The statistical significance level was fixed at $p < 0.05$.

Results :

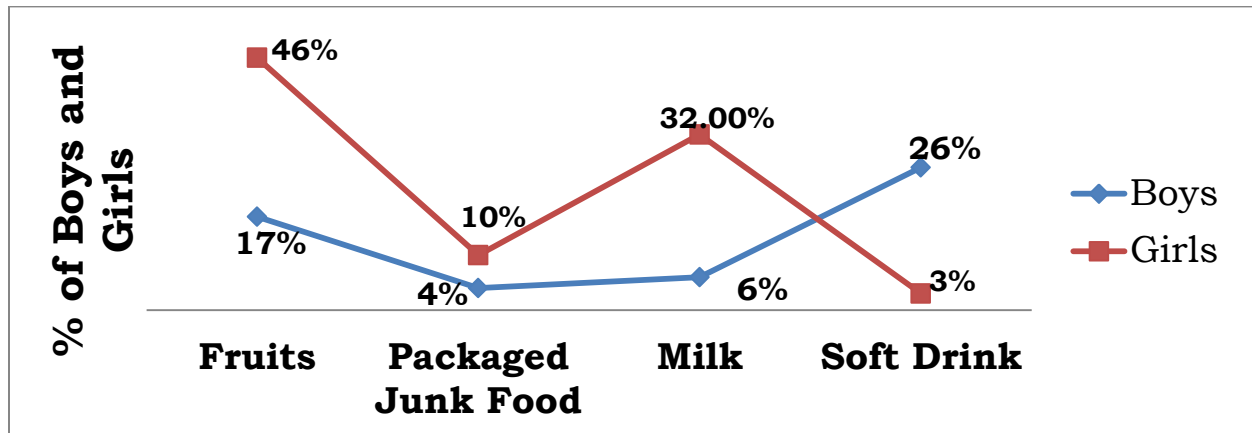
A total of 482 participants were enrolled in the study. Initially 10 students were absent who were given questionnaires' during next session. Out of 482 students 30% present were male. Majority of the study subjects belonged to Urban locality. About 60% of the Mothers of Study participants were below graduate and 30% of were Working rest of them were homemakers. Amongst the study participants majority of them belong to Class II & III Socio Economic Class i.e (31%) & (29.6%) respectively. Only 22% of the students indulged in daily physical exercise. (Table 1) BMI amongst Boys and Girls showed presence of both Underweight and Obesity. Thus dietary habits are acting as double edge sword. About 18 % of the Study participants were in the pre-obese category. Obesity was more prevalent among boys. Health Education intervention will stop this transition to Obesity. Mean BMI of Girls was seen to be marginally more than boys.

Table 1 : Classification of Subjects based on BMI

Category	BMI	Frequency				Total
		Boys		Girls		
		n(%)	Mean ± SD	n(%)	Mean ± SD	
Underweight	< 18.50	4(2.12%)		32(10.4%)		36 (7.9%)
Normal	18.50-24.99	108(65.3%)	22.01±3.39	213(69.8%)	23.08±3.12	321 (7.68%)
Pre-Obese	25-29.99	40(23.4%)		41(13.3%)		81(18.44%)
Obese	> 30	21(12.48%)		23 (6.9%)		44(1.97%)
Total		173		309		482

(Figure1) and (Table 2) Regarding consumption of different foodstuffs the results reveal poor consumption fruits and Vegetable among the boys as compared to girls. About 25% of the boys were having soft drinks on daily basis. Consumption of Packed Junk food was found to be more among the female students. Overall right dietary practices were seen among the females compared to males.

Figure 1 : Daily Food Eating Habits Among the Medical Students.



Amongst the boys daily consumption of fruits, milk and egg was considerably low. Girls on the other hand incorporated them on a more regular basis (Table 2). Regarding Packaged Junk food high prevalence was seen among Girls. Adherence to breakfast culture was seen to be poor among the boys and girls as per the feedback given due to one or other reason but poor time management was the common reason given.

Foodstuff	Boys (n=173)			Girls (n=309)		
	Frequency per Week (%)			Frequency per Week (%)		
	Once	Alternate Day	Daily	Once	Alternate Day	Daily
Fruits	33(19.1%)	110(63.8%)	30(17.0%)	47(15.2%)	115(37.14%)	147(47.6%)
Leafy Vegetables	33(19.1%)	37(21.27%)	103(59.57%)	15(4.7%)	53(17.1%)	241(74.2%)
Meat & Poultry	36(21.2%)	34(72.3%)	126(6.3%)	59(34.28%)	188(60.9%)	62(4.7%)
Milk	62(36.1%)	99(57.4%)	12(6.3%)	150(48.5%)	59(19.0%)	100(32.3%)
Egg	41(23.4%)	121(65.9%)	18(10.6%)	62(20.0%)	226(73.3%)	21(6.6%)
Package Junk Food	99(57.4%)	66(38.2%)	7(4.25%)	167(54.2%)	109(35.2%)	33(10.4%)
Soft Drinks	81(46.8%)	48(27.6%)	44(25.5%)	237(77.1%)	62(20.0%)	10(2.8%)

Table 3 show Psychological factors related to food consumption .Some of the like Having junk food while on gadgets, feeling of urge to eat while being alone and eating food till stomach is full showed statistically significant results.

Table 3 : Psychological Factors associated with Dietary Habits		
Psychological Factors	Mean ± SE	p value
Have junk food while having long screen time		
Newer	4.58±0.12	<0.001
Sometimes	3.96±0.11	
Always	3.13±0.21	
Eat excess when I am lonely		
Newer	4.71±0.13	<0.001
Sometimes	3.84±0.11	
Always	3.67±0.17	
Eat excess when I feel bored		
Newer	4.71±0.13	0.137
Sometimes	3.84±0.11	
Always	3.67±0.17	
Eat till my stomach is full		
Newer	4.52±0.16	<0.001
Sometimes	3.98±0.12	
Always	3.79±0.19	
Eat excess when I am happy		
Newer	4.55±0.21	0.129
Sometimes	4.12±0.1	
Always	3.91±0.19	

Mean and Standard error of mean is calculated..Significance Calculated by One Way Anova Test

Table 4 Calorie and Protein Intake by the Boys and Girls was calculated using 24 hrs dietary recall method. As per the dietary history about 90% of the boys and girls were consuming calorie below the recommended calorie intake as per the NIN guidelines. This was found to be statistically significant. The protein intake showed reversal of stats compared to calorie intake like more than half of the boys and girls were taking proteins above the recommended level but it was not found to be statistically significant.

Table 4 : Calorie and Protein Intake by Student.

Calorie Intake	Boys(n=173)(%)	Girls(n=309)(%)	Total (%)	χ^2	P value
>Recommended	96(55.31%)	168(54.28%)	264(54.6%)	5.321	0.962
Recommended	26(14.89%)	28 (16.19%)	54(15.78%)		
< Recommended	51(29.78%)	113(29.52%)	164(29.6%)		
Protein Intake					
>Recommended	7(4.18%)	24 (7.61%)	31(5.92%)	0.379	0.0326
Recommended	7(4.18%)	12(3.8%)	19(3.28%)		
< Recommended	159(91.64%)	273(88.57%)	432(90.8%)		

Discussion :

In our study we majority of the students from urban locality. Majority belonged to Upper Middle and Middle class with only 10% belonging to lower SE class. Overall culture of Physical Activity of the students seems to be better. Females opted for sedentary lifestyle more than males. As ICMR –INDIAB5 (Phase 1) showed similar results with physical inactivity seen among 71% of female and 58% among males^[8].

Regarding BMI we observed presence of both Underweight and Obese students . Underweight female population was considerably higher . Our study depicted 23% prevalence of Overweight among boys and 13% among the girls. As per WHO report 19% of the boys and 18% of the girls are Overweight^[9]. Gupta S et.al from Calcutta and Vibhuteet. al from Maharashtra study on medical students reported a prevalence of 11.7% and 8 % of overweight and two per cent obesity among medical students of Delhi ^[1,10].

Regarding incorporation of fruits and vegetables in the diet, about 148 participants (30%) consumed them on daily basis. Indian consumers across all income groups are consuming less than the ‘recommended’ quantity of at least 400 grams (or five daily servings with an average serving size of 80 gm) of fruits and vegetables ^[11]. Study conducted in 2020 in Saudi Arabia, 20.4% consumed the recommended daily intake^[12].

Our study showed higher occurrence of gastrointestinal symptoms among girls which was statistically significant. Study conducted by FirdosJahan et al from

Oman and Waseem Akram et al from Dental College Karachi showed significant occurrence of GI symptoms among medical students^[13,14]. A study conducted on college students in Japan showed the prevalence rate of 6.7% using the Rome II criteria^[15], while the frequency of dyspepsia among students from Beijing using Rome III and Anhui using Rome II was 1.6% and 8.3%, respectively^[16,17].

Our study showed significant association of few psychological behavior with food consumption. Stress generated as a result of packed medical curriculum has adversely affected food behavior among the medical students. Study conducted in Saudi Arabia depicted similar food behavior pattern among the medical students^[18]. Several researchers have shown a prevalence of stress among medical students, ranging from 28.9% to 61.4% in the United Kingdom, Malaysia, and Thailand^[19,20,21].

National Institute of Nutrition has recommended guidelines for calorie and protein consumption for different age group and work pattern. Our study showed lowered calorie consumption among the medical students. In contrast to our study results from medical students from Maharashtra showed lower consumption of calorie^[22]. The protein intake was found to be more comparing the dietary recommendation given by ICMR^[23].

Conclusion :

The present study clearly shows that there is need to train students on right dietary practices. The student psychology towards dietary habits is deviating in a wrong direction that can be concluded from the above results. Also the protein intake is not at par with recommended dietary allowance but students are consuming more carbohydrates resulting in total calorie intake above the recommended levels.

Limitations :

Batch of Interns should have been included as this batch had maximum duration of food intake from hostel mess. This would have helped us to make more clear and specific recommendation. But because of Internship posting it was not possible for us to include all of them at one time. Also we would have made of comparison with food habits of private college students who are present in same study area in a private medical college.

Recommendation :

This can be done through special training program during foundation course of Ist MBBS or inclusion of Applied nutrition topics in the syllabus during their Ist MBBS and throughout the course of MBBS so that right dietary practices can be

adopted at student level. Also quality control check should be made at regular interval by deployed experts.

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