



A Cross-Sectional Study on Association between Dietary Habits and Mental Health Status among College Students in Field Practice Area of Osmania Medical College, Hyderabad, Telangana

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Abstract

Background: The prevalence of mental health disorders in India has risen steadily in recent years, contributing to an escalating public health concern. Estimates suggest that nearly 15% of the Indian population grapples with some form of mental health issue. Diet is an important determinant influencing both physical and mental health. Individual responses to dietary intake vary considerably. Some may find specific foods positively affecting their mental well-being, while others may not experience the same effect. This study was conducted among college students to evaluate the association between dietary habits and mental health status. **Objectives:** (1) To identify the dietary habits among the study population; (2) To assess mental health status among the study population; (3) To determine the association between dietary habits and mental health among the study population. **Methodology:** A cross-sectional study was conducted among degree college students in the urban field practice area of Osmania Medical College, Hyderabad, in August 2024. A total of 403 students were enrolled through systematic random sampling. Data were collected using a semi-structured self-administered questionnaire and the validated Depression Anxiety Stress Scale (DASS-21) via Google Forms. Data were analysed using SPSS v25. **Results:** Of 403 participants, 72.7% followed a non-vegetarian diet. Depression was identified in 46.9% (extremely severe: 9.2%), anxiety in 47.1% (extremely severe: 8.4%), and stress in 45.9% (extremely severe: 4.7%) of participants. Prevalence of depression, anxiety, and stress was higher among females than males. Significant association was found between stress and both gender and food cravings. **Conclusion:** Majority of the study population followed a non-vegetarian diet. Mild depression and mild anxiety were the most prevalent mental health conditions. Stress was significantly associated with food cravings, underscoring the need for targeted nutritional counselling and mental health interventions in college settings.

Keywords: Dietary habits, mental health, college students, DASS-21, depression, anxiety, stress



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INTRODUCTION

Diet is an integral determinant of both physical and mental health. Irregular eating patterns, high consumption of fast food, economic constraints, psychological stress, and emotional eating can adversely affect the health status of individuals. Excessive intake of meat has also been associated with behavioural changes. The prevalence of mental health disorders in India has risen steadily in recent years, and these conditions now constitute a major public health burden. Globally, the prevalence of depression stands at 48.9%, anxiety at 39.65%, and stress at 45%. In India, the prevalence of depression is reported to be 59.8%, anxiety 32%, and stress 83%. There is increasing mental distress and anxiety among students as they transition into college life, a period characterised by academic pressure, social adjustments, and changing dietary patterns. Despite this growing concern, limited data exist on the relationship between dietary habits and mental health in the Indian college-going population. The present study was therefore undertaken to assess dietary habits and mental health status, and to determine the association between dietary intake and mental health outcomes, among degree college students in the urban field practice area of Osmania Medical College, Hyderabad.

MATERIALS AND METHODS

2.1 Study Design and Setting

A cross-sectional study was conducted among degree college students in the urban field practice area of Osmania Medical College, Hyderabad, Telangana, during August 2024. The study was conducted over a period of one month.

2.2 Study Population and Sample Size

The study population comprised students enrolled in degree colleges (medical, engineering, law, and other streams) within the urban field practice area. Sample size was calculated using the formula: $n = 4PQ/D^2$, where P = prevalence of mental health disorders taken as 50%, Q = 100 – P, and D = allowable error of 5%. This yielded a minimum required sample size of 400. A total of 403 students were finally enrolled.

2.3 Sampling Method

After obtaining approval from college administration, the list of degree colleges under the urban field practice area was compiled. Systematic random sampling was employed: all eligible students were numbered and random numbers were generated using Microsoft Excel. Selected students were approached during class hours.

2.4 Inclusion and Exclusion Criteria

Inclusion Criteria:

- All degree college students willing to participate and who provided verbal informed consent.

Exclusion Criteria:

- Students who did not provide consent.
- Students absent on the day of data collection.
- School students and students who had already completed graduation.

2.5 Data Collection Tool

Data were collected using a pre-designed, semi-structured, self-administered questionnaire capturing sociodemographic variables, dietary habits, BMI, lifestyle behaviours, and socioeconomic information. Mental health was assessed using the validated Depression Anxiety Stress Scale (DASS-21), which provides separate sub-scores for depression, anxiety, and stress. The tool was administered through Google Forms. Respondents' names were not collected to maintain anonymity and encourage truthful responses.

2.6 Ethical Considerations

The purpose of the study was explained to all participants. Verbal informed consent was obtained. Participation was entirely voluntary and confidentiality of all data was strictly maintained. Approval was obtained from the respective college administrations before data collection.

2.7 Statistical Analysis

Data were entered into Microsoft Excel and analysed using SPSS software version 25 and R software version 4.2.2. Descriptive statistics were used to summarise sociodemographic and dietary variables. Chi-square tests were applied to determine associations between categorical variables. A p-value of <0.05 was considered statistically significant.

RESULTS

Table 1: Sociodemographic Characteristics of Study Participants (n = 403)

DEMOGRAPHIC VARIABLE	CATEGORIES	N (%)
Gender	Male	282 (70.0)
	Female	121 (30.0)
Age (years)	17–19	191 (47.4)
	20–22	198 (49.1)
	23–25	14 (3.5)
	Others	0 (0.0)
Degree Stream	Medical	89 (22.1)
	Engineering	113 (28.0)
	Law	61 (15.1)
	Others	140 (34.8)
Year of Study	1st Year	77 (19.1)
	2nd Year	186 (46.2)
	3rd Year	135 (33.5)
	4th Year	5 (1.2)
Hostel Resident	Yes	173 (42.9)
	No	230 (57.1)

3.1 Sociodemographic Profile

A total of 403 students participated in the study. The majority were male (70.0%). The largest age group was 20–22 years (49.1%), followed by 17–19 years (47.4%). Engineering students formed the largest stream (28.0%), followed by others (34.8%), medical (22.1%), and law (15.1%). The majority (46.2%) were in their 2nd year of study. Approximately 42.9% were hostel residents.

3.2 Dietary Habits and Lifestyle Characteristics

The majority of participants (72.7%) were non-vegetarians. Among non-vegetarians, chicken was the most commonly consumed meat (71.7%), followed by egg (65.0%), fish (47.4%), seafood (30.0%), and mutton (24.8%). With regard to BMI, 26.5% were underweight, 56.0% were in the normal range, 13.1% were overweight, and 4.7% were obese. Food cravings were reported by 59.1% of participants, and 50.3% reported frequent consumption of fast foods. Most participants (86.6%) used pocket money to purchase fast food; 13.4% concealed the expenditure from parents. Smoking and alcohol consumption were reported by 5.0% and 7.7% of participants, respectively.

Table 2: Dietary Habits, BMI, and Lifestyle Variables (n = 403)

VARIABLE	CATEGORIES	N (%)
Dietary Pattern	Non-Vegetarian	293 (72.7)
	Vegetarian + Egg	35 (8.7)
	Strict Vegetarian	75 (18.6)
Non-Veg Food Type	Chicken	289 (71.7)
	Mutton	100 (24.8)
	Fish	191 (47.4)
	Seafood	121 (30.0)
	Egg	262 (65.0)
BMI Category	Underweight (<18.5)	107 (26.5)
	Normal (18.5–24.9)	226 (56.0)
	Overweight (25–29.9)	53 (13.1)
	Obese (≥30)	19 (4.7)
Food Cravings	Yes	238 (59.1)
	No	165 (40.9)
Frequent Fast Food	Yes	203 (50.3)
	No	200 (49.7)
Mother's Employment	Employed	85 (21.1)
	Homemaker	318 (78.9)
Pocket Money Source for Junk Food	Pocket money	349 (86.6)
	Conceals from parents	54 (13.4)
Smoking	Yes	20 (5.0)
	No	383 (95.0)
Alcohol Consumption	Yes	31 (7.7)
	No	372 (92.3)

3.3 Mental Health Status (DASS-21)

Mental health was assessed using the DASS-21 scale. Overall, 46.9% of participants had some degree of depression (above normal range), 47.1% had some degree of anxiety, and 45.9% had some degree of stress. In terms of severity, extremely severe depression was observed in 9.2%, extremely severe anxiety in 8.4%, and extremely severe stress in 4.7%. Moderate and severe levels of all three domains were also substantially prevalent. Prevalence of depression, anxiety, and stress was higher among females compared to males. A significant association was found between stress and gender ($p < 0.05$) as well as between stress and food cravings ($p < 0.05$).

Table 3: Mental Health Status Based on DASS-21 Severity Classification (n = 403)

Severity Level (DASS-21 Score)	Depression n (%)	Anxiety n (%)	Stress n (%)
Normal (0–4)	212 (52.6)	211 (52.4)	216 (53.6)
Mild (5–6)	37 (9.2)	42 (10.4)	49 (12.2)
Moderate (7–10)	63 (15.6)	81 (20.1)	83 (20.6)
Severe (11–13)	52 (12.9)	33 (8.2)	34 (8.4)
Extremely Severe (>14)	37 (9.2)	34 (8.4)	19 (4.7)
Total with any symptoms	189 (46.9)	190 (47.1)	185 (45.9)

DISCUSSION

The present study examined the association between dietary habits and mental health status among college students in Hyderabad, Telangana. A cross-sectional design with systematic random sampling and the validated DASS-21 instrument was employed to ensure reliable data. The predominance of non-vegetarian dietary patterns (72.7%) in our sample reflects the broader dietary culture of Telangana and is consistent with published data from similar urban south Indian populations. Chicken was the most commonly consumed meat, followed by eggs and fish. The high rate of food cravings (59.1%) in our study was markedly higher than the 36% reported by a comparable study from Tamil Nadu (2021), suggesting potentially higher dietary impulsivity or greater fast-food availability in the current study area. Approximately half of participants (50.3%) reported frequent consumption of fast food, which aligns with global trends of increasing reliance on processed and convenience foods among young adults.

The overall prevalence of any depression (46.9%), anxiety (47.1%), and stress (45.9%) found in our study is consistent with, though somewhat lower than, national estimates (depression 59.8%, stress 83%). These figures nonetheless indicate a substantial mental health burden among the college student population. The observation that females reported higher levels of depression, anxiety, and stress than males is consistent with a large body of literature, likely reflecting psychosocial vulnerabilities including societal expectations, academic pressure, and interpersonal stressors that disproportionately affect young women. A significant association between stress and food cravings is a notable finding. Food cravings, particularly for high-calorie and high-fat foods, are known to be exacerbated by stress through hypothalamic-pituitary-adrenal (HPA) axis activation and dopaminergic reward pathways. This creates a potential vicious cycle wherein stress drives unhealthy dietary choices, which in turn may worsen mental health outcomes. The significant association between stress and gender further corroborates the differential mental health burden observed across sexes in the college-going population. The high proportion of underweight students (26.5%) alongside prevalent food cravings and fast food consumption points to a paradoxical nutritional profile – one characterised by inadequate macro- and micronutrient intake co-existing with excessive consumption of energy-dense, nutrient-poor foods. This dual nutritional challenge is emerging as a critical concern in Indian urban youth populations.

Limitations of this study include its cross-sectional design, which precludes causal inference; reliance on self-reported data, which may be subject to recall bias; and the restriction to degree colleges in a single urban field practice area, which may limit generalisability. Future longitudinal studies in diverse populations, including rural settings and different educational levels, are warranted.

CONCLUSION

The majority of the study population followed a non-vegetarian diet, with chicken being the most commonly consumed meat. The prevalence of depression, anxiety, and stress, as assessed by the DASS-21, was approximately 47%, 47%, and 46% respectively, indicating a high mental health burden among college students. Females demonstrated a consistently higher prevalence across all three mental health domains. A statistically significant association was found between stress and both gender and food cravings, highlighting the interplay between dietary behaviour and psychological well-being.

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