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Original Article

Factors Associated with Dietary Habits Among Undergraduate Nursing Students

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ABSTRACT

Background: Dietary habits are a key determinant of health, yet unhealthy eating behaviors are common among university students, particularly nursing students facing academic and clinical demands. **Objective:** This study aimed to assess dietary habits and identify factors associated with dietary habits among undergraduate nursing students. **Methods:** A descriptive cross-sectional study was conducted from January to March 2026 at People's Nursing School, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro. A total of 168 undergraduate nursing students were selected using non-probability convenience sampling. Data were collected using a structured questionnaire and analyzed using SPSS version 23. Associations between variables were examined using the Chi-square test, with a p-value < 0.05 considered statistically significant. **Results:** Among 168 undergraduate nursing students, the majority had moderate dietary habits (51.2%), followed by good (25.0%) and poor (23.8%). Dietary patterns reflected a mix of healthy and unhealthy behaviors, including low daily intake of fruits and vegetables (26.2%) and frequent snacking practices. Significant associations were observed between dietary habits and gender ($p = 0.002$) as well as residence ($p = 0.038$). Eating practices, including meal frequency ($p = 0.048$), midnight snacking ($p < 0.001$), sleeping immediately after dinner ($p < 0.001$), and walking after dinner ($p = 0.002$), were also significantly associated with dietary habits. No significant associations were found with age, academic year, socioeconomic status, or physical activity. **Conclusion:** Dietary habits among undergraduate nursing students were predominantly moderate, with notable unhealthy dietary behaviors. Gender, residence, and eating practices were significantly associated with dietary habits, highlighting the role of modifiable behavioral and environmental factors in shaping dietary patterns. **Keywords:** Dietary habits, Nursing students, Eating practices, Lifestyle factors, Physical activity

INTRODUCTION

Dietary habits refer to long-term patterns of food consumption that individuals develop and maintain over time (1). Unhealthy dietary practices such as fast-food consumption, meal skipping, and inadequate nutrient intake are increasingly common among young adults and contribute to obesity, malnutrition, and non-communicable diseases (2, 3). According to the World Health Organization, unhealthy diets are among the leading risk factors for global mortality, contributing to approximately 11 million deaths annually (3), making it a major global public health concern. Nutrition plays a vital role in both physical and mental health. A balanced diet supports energy production, immune function, and disease prevention, while poor dietary habits are associated with stress, anxiety, reduced concentration, and poor academic performance. In contrast, healthy dietary patterns improve cognitive function, emotional well-being, and academic outcomes (4, 5). University students represent a vulnerable population for unhealthy lifestyle behaviors. Studies show that 30–60% of students skip meals, particularly breakfast, due to academic pressure and time constraints (6). In addition, low intake of fruits and vegetables and high reliance on fast food are common, negatively affecting health and academic performance (7). Undergraduate nursing students face additional challenges due to the demanding nature of their academic and clinical training. Nursing programs involve long hours of lectures, clinical rotations, and practical assignments, resulting in irregular schedules and increased stress levels (8). Studies report that more than 60% of nursing students experience irregular meal patterns due to academic workload. Despite knowing nutrition, many fail to adopt healthy dietary practices (9). Factors such as lack of time, convenience, accessibility of unhealthy food options, peer influence, and financial constraints contribute to poor dietary habits (10).

Globally, unhealthy dietary habits among university students have become increasingly prevalent, contributing to rising rates of overweight and obesity. Evidence shows that approximately 20%–30% of students are overweight and 10%–20% are obese, depending on the region (11). In some settings, combined prevalence exceeds 30%–40%, mainly due to poor dietary patterns, fast food consumption, and sedentary lifestyles (12). Similar trends are observed in Pakistan. Recent studies report that a large proportion of students frequently skip breakfast and consume inadequate amounts of fruits and vegetables, indicating poor dietary quality and irregular eating patterns (13). Approximately 50%–60% of university students consume fast food at least once or twice per week (14). Hostel-based students are particularly vulnerable due to limited access to nutritious meals and reliance on cafeteria or street food (15). Financial constraints and cultural preferences for fried and high-calorie foods further worsen dietary habits, increasing risks of obesity, diabetes, cardiovascular diseases, fatigue, and poor academic performance (16). Despite this growing concern, limited evidence exists in Pakistan, particularly in Sindh, regarding the factors associated with dietary habits among undergraduate nursing students. Therefore, this study aims to assess dietary habits and identify factors associated with them among undergraduate nursing students.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted from January to March 2026 at People's Nursing School, Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro. The study population comprised undergraduate nursing students enrolled in the Bachelor of Science in Nursing (BSN) program. A sample size of 168 was calculated using the Raosoft sample size calculator, assuming a 95% confidence level and a 5% margin of error. A non-probability convenience sampling technique was employed. Students from Year 1 to Year 4 who were present during the data collection period and provided informed consent were included, while those with chronic illnesses affecting dietary habits, those absent during data collection, and those who declined participation were excluded. Data were collected using a structured, self-administered questionnaire adapted from previously validated instruments used in similar studies (17), comprising sections on demographic characteristics, eating behaviors, eating practices, and physical activity. Questionnaires were distributed and completed on-site, checked for completeness, coded, and securely stored. Data were entered and analyzed using

Statistical Package for the Social Sciences (SPSS) version 23. Descriptive statistics, including frequencies and percentages, were used to summarize categorical variables, while associations were assessed using Pearson's Chi-square test, with a p-value of less than 0.05 considered statistically significant. Results were presented in tables and figures. Permission for data collection was obtained from the Director of People's Nursing School, LUMHS, Jamshoro. The study objectives were explained to all participants, and written informed consent was obtained before data collection. Confidentiality was maintained by assigning unique identification codes, and all data were securely stored with restricted access. Participation was voluntary, and participants were informed of their right to withdraw at any time without any consequences.

RESULTS

Demographic Characteristics

A total of 168 undergraduate nursing students participated in the study. Females constituted 57.1% of the sample, while 42.9% were males. Most participants were aged between 18 and 23 years, with 39.9% in the 18–20 years group and 39.3% in the 21–23 years group, while 20.8% were aged 24–26 years. Regarding residence, 40.5% lived in hostels, 36.9% with their families, and 22.6% in rented accommodation. The majority belonged to the middle socioeconomic class (63.1%), followed by upper (19.6%) and lower (17.3%) classes. Academic distribution was relatively balanced, with the highest proportion in the 1st year (27.4%) and the lowest in the 4th year (21.4%) (Table 1).

Table 1: Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	72	42.9%
	Female	96	57.1%
Age (years)	18–20	67	39.9%
	21–23	66	39.3%
	24–26	35	20.8%
Residence	At home with family	62	36.9%
	Hostel	68	40.5%
	Rented apartment	38	22.6%
Socioeconomic Status	Lower	29	17.3%
	Middle	106	63.1%
	Upper	33	19.6%
Academic Year	1st Year	46	27.4%
	2nd Year	45	26.8%
	3rd Year	41	24.4%
	4th Year	36	21.4%

Dietary Habits

The majority of students demonstrated moderate dietary habits (51.2%), followed by good (25.0%) and poor dietary habits (23.8%) (Figure 1).

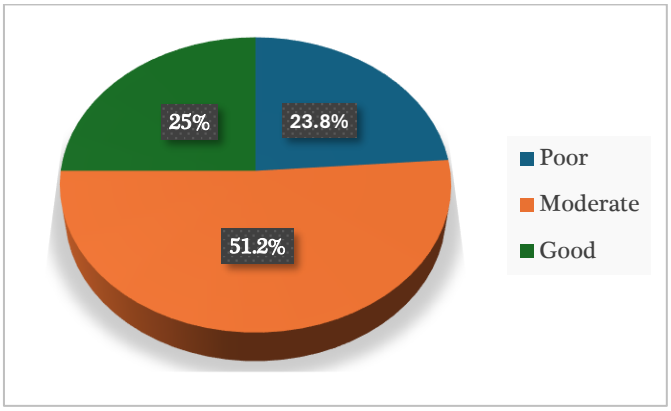

Figure 1: Dietary Habits of Participants

Eating Behaviours

Participants showed mixed eating behaviours. Snacking with energy or carbonated drinks during television viewing was most commonly reported 1–2 times per week (28.6%), followed by 3–4 times per week (27.4%). Daily snacking during mobile use or gaming was reported by 28.0% of students. Snacking between meals was most frequent 3–4 times per week (32.7%). Energy drink consumption was generally low, with 42.9% reporting rare intake. Carbonated drink consumption was moderately frequent. Fruit and vegetable intake remained inconsistent, with most students consuming them 1–3 times per week. A majority (57.1%) reported rare fast food consumption (Table 2).

Table 2: Eating Behaviors of Participants (n = 168)

Variable	Category	Frequency (n)	Percentage (%)
Snacking with energy or carbonated drinks (while watching TV)	Every day	43	25.6%
	3-4 times/week	46	27.4%
	1-2 times/week	48	28.6%
	Seldom/Rarely	31	18.5%
Snacking with energy or carbonated drinks (while playing games)	Every day	47	28.0%
	3-4 times/week	44	26.2%
	1-2 times/week	42	25.0%
	Seldom/Rarely	35	20.8%
Snacking separately from meals	Every day	39	23.2%
	3-4 times/week	55	32.7%
	1-2 times/week	42	25.0%
	Seldom/Rarely	32	19.0%
Consumption of energy drinks	Every day	24	14.3%
	3-4 times/week	24	14.3%
	1-2 times/week	48	28.6%
	Seldom/Rarely	72	42.9%
Consumption of carbonated/flavored drinks	Every day	36	21.4%
	3-4 times/week	47	28.0%
	1-2 times/week	43	25.6%
	Seldom/Rarely	42	25.0%
Fruits and vegetables (high in fiber)	Every day	44	26.2%
	3-4 times/week	45	26.8%
	1-2 times/week	48	28.6%

	Seldom/Rarely	31	18.5%
Eating home-cooked food with family	Every day	40	23.8%
	3-4 times/week	33	19.6%
	1-2 times/week	41	24.4%
	Seldom/Rarely	54	32.1%
Eating fast food	Every day	19	11.3%
	3-4 times/week	20	11.9%
	1-2 times/week	33	19.6%
	Seldom/Rarely	96	57.1%

Eating Practices

Most students (74.4%) reported eating at a dining table, while 25.6% followed a squatting position. A majority (63.7%) consumed three meals per day. Midnight snacking was reported by 44.0% of participants. Sleeping immediately after dinner was reported by 39.3%, while 50.0% reported walking after dinner (Table 3)

Table 3: Eating Practices of Participants (n = 168)

Variable	Category	Frequency (n)	Percentage (%)
How do you eat your food?	On a dining table	125	74.4%
	The Islamic way of squatting down	43	25.6%
Do you take meals three times a day?	Yes	107	63.7%
	No	61	36.3%
Do you indulge in midnight snacking?	Yes	74	44.0%
	No	94	56.0%
Do you sleep immediately after having dinner?	Yes	66	39.3%
	No	102	60.7%
Do you walk for a while after dinner?	Yes	84	50.0%
	No	84	50.0%

Physical Activity

Regarding physical activity, 29.8% of participants exercised 3–4 times per week, while 22.0% rarely exercised. Walking was the most common form of exercise (35.1%), followed by running or cycling (23.8%). A smaller proportion (17.3%) reported no engagement in physical activity (Table 4).

Table 4: Physical Activity of Participants (n = 168)

Variable	Category	Frequency (n)	Percentage (%)
How often do you exercise?	Every day	34	20.2%
	3-4 times/week	50	29.8%
	1-2 times/week	47	28.0%
	Seldom/Rarely	37	22.0%
What kind of exercise do you do?	Walking	59	35.1%
	Running / Cycling	40	23.8%
	Swimming	12	7.1%
	Workout in the Gym	28	16.7%
	Do not like to exercise	29	17.3%

Gender showed a statistically significant association with dietary habits ($p = 0.002$), with females demonstrating healthier dietary patterns than males. Residence was also significantly associated ($p = 0.038$), indicating better dietary behavior among students living with families compared to those in

hostels or rented accommodation. No significant association was observed between dietary habits and age (p = 0.933), academic year (p = 0.413), or socioeconomic status (p = 0.099) (Table 5).

Table 5: Association of Socio-Demographic Factors with Dietary Habits (n = 168)

Variables	Category	Poor n (%)	Moderate n (%)	Good n (%)	Total	χ^2 (df)	p-value
Gender	Male	25 (34.2%)	38 (52.1%)	10 (13.7%)	73	12.52 (2)	0.002
	Female	15 (15.8%)	48 (50.5%)	32 (33.7%)	95		
Residence	Family	7 (11.3%)	35 (56.5%)	20 (32.3%)	62	10.14 (4)	0.038
	Hostel	19 (27.9%)	34 (50.0%)	15 (22.1%)	68		
	Rented Apartment	14 (36.8%)	17 (44.7%)	7 (18.4%)	38		
Age (years)	18–20	16 (23.9%)	35 (52.2%)	16 (23.9%)	67	0.839 (4)	0.933
	21–23	14 (21.2%)	35 (53.0%)	17 (25.8%)	66		
	24–26	10 (28.6%)	16 (45.7%)	9 (25.7%)	35		
Academic Year	1st Year	10 (21.7%)	26 (56.5%)	10 (21.7%)	46	6.09 (6)	0.413
	2nd Year	16 (35.6%)	19 (42.2%)	10 (22.2%)	45		
	3rd Year	6 (14.6%)	23 (56.1%)	12 (29.3%)	41		
	4th Year	8 (22.2%)	18 (50.0%)	10 (27.8%)	36		
Socioeconomic Status	Lower	12 (41.4%)	13 (44.8%)	4 (13.8%)	29	7.81 (4)	0.099
	Middle	19 (17.9%)	57 (53.8%)	30 (28.3%)	106		
	Upper	9 (27.3%)	16 (48.5%)	8 (24.2%)	33		

Association of Eating Practices with Dietary Habits

Consuming three meals per day was significantly associated with better dietary habits (p = 0.048). Midnight snacking showed a strong association with poor dietary habits (p < 0.001), while sleeping immediately after dinner was also significantly associated with poorer dietary behavior (p < 0.001). Walking after dinner was positively associated with healthier dietary habits (p = 0.002), whereas mode of eating was not significantly associated (p = 0.729) (Table 6).

Table 6: Association of Eating Practices with Dietary Habits (n = 168)

Variables	Category	Poor n (%)	Moderate n (%)	Good n (%)	Total	χ^2 (df)	p-value
Mode of eating	Dining table	30 (24.0%)	62 (49.6%)	33 (26.4%)	125	0.632 (2)	0.729
	Squatting	10 (23.3%)	24 (55.8%)	9 (20.9%)	43		
Meals three times/day	Yes	19 (17.8%)	60 (56.1%)	28 (26.2%)	107	6.068 (2)	0.048
	No	21 (34.4%)	26 (42.6%)	14 (23.0%)	61		
Midnight snacking	Yes	27 (36.5%)	39 (52.7%)	8 (10.8%)	74	19.637 (2)	<0.001
	No	13 (13.8%)	47 (50.0%)	34 (36.2%)	94		
Sleep after dinner	Yes	26 (39.4%)	29 (43.9%)	11 (16.7%)	66	15.225 (2)	<0.001
	No	14 (13.7%)	57 (55.9%)	31 (30.4%)	102		

Walk after dinner	Yes	12 (14.3%)	43 (51.2%)	29 (34.5%)	84	12.495 (2)	0.002
	No	28 (33.3%)	43 (51.2%)	13 (15.5%)	84		

Association of Physical Activity with Dietary Habits

No statistically significant association was found between physical activity and dietary habits. Exercise frequency (p = 0.320) and type of exercise (p = 0.767) were not significantly associated with dietary patterns. However, slightly better dietary habits were observed among students engaging in regular physical activity, particularly running or cycling (Table 7).

Table 7: Association of Physical Activity with Dietary Habits (n = 168)

Variables	Category	Poor n (%)	Moderate n (%)	Good n (%)	Total	χ^2 (df)	p-value
Exercise frequency	Every day	11 (32.4%)	15 (44.1%)	8 (23.5%)	34	7.014 (6)	0.320
	3–4 times/week	8 (16.0%)	28 (56.0%)	14 (28.0%)	50		
	1–2 times/week	10 (21.3%)	22 (46.8%)	15 (31.9%)	47		
	Seldom/Rarely	11 (29.7%)	21 (56.8%)	5 (13.5%)	37		
Type of exercise	Walking	14 (23.7%)	30 (50.8%)	15 (25.4%)	59	4.914 (8)	0.767
	Running/Cycling	7 (17.5%)	19 (47.5%)	14 (35.0%)	40		
	Swimming	4 (33.3%)	6 (50.0%)	2 (16.7%)	12		
	Gym workout	6 (21.4%)	16 (57.1%)	6 (21.4%)	28		
	Do not exercise	9 (31.0%)	15 (51.7%)	5 (17.2%)	29		

DISCUSSION

The present study assessed dietary habits among undergraduate nursing students and examined their association with socio-demographic characteristics, eating practices, and lifestyle behaviors. The findings indicate that dietary habits in this population are predominantly influenced by behavioral and environmental factors. The majority of students demonstrated moderate dietary habits (51.2%), with a substantial proportion exhibiting poor dietary patterns. This suggests that optimal dietary behavior is not consistently achieved among nursing students. Similar findings have been reported in previous studies among university populations, where moderate dietary habits were most prevalent, accompanied by a considerable proportion of unhealthy practices (18).

The study revealed mixed dietary patterns, characterized by the coexistence of both healthy and unhealthy behaviors. Although most participants reported infrequent fast food consumption, unhealthy snacking remained common, and fruit and vegetable intake was suboptimal, with only 26.2% reporting daily consumption. Similar patterns have been documented in studies from China and Kuwait, where university students demonstrated low intake of fruits and vegetables and poor adherence to dietary recommendations (19, 20). Comparable findings have also been reported in Bangladesh, highlighting the widespread prevalence of unhealthy dietary behaviors among students (21). Gender showed a statistically significant association with dietary habits (p = 0.002), with female students demonstrating healthier dietary patterns than males. This finding is consistent with recent evidence reporting poorer dietary behaviors and higher dietary risk among male university students (22, 23), suggesting that gender-related differences in dietary practices are consistent across diverse populations. Residence was also significantly associated with dietary habits (p = 0.038). Students living with their families exhibited better dietary patterns compared to those residing in hostels or rented accommodations. This aligns with findings from Bangladesh and Türkiye, where living away from family has been linked to increased

reliance on convenience foods and unhealthy eating habits (24, 25). These results emphasize the protective influence of the family environment on dietary behavior.

No significant association was observed between dietary habits and age or academic year. Although socioeconomic status was not statistically significant ($p = 0.099$), a trend toward poorer dietary habits among students from lower socioeconomic backgrounds was noted. This may reflect financial constraints limiting access to healthy food choices and promoting consumption of inexpensive, energy-dense diets (26). Eating practices demonstrated the strongest associations with dietary habits. Midnight snacking and sleeping immediately after dinner were significantly associated with poorer dietary behaviors ($p < 0.001$). These findings are consistent with previous research linking irregular eating patterns and late-night behaviors to unhealthy dietary outcomes (24). In contrast, consuming regular meals three times per day ($p = 0.048$) and walking after dinner ($p = 0.002$) were associated with healthier dietary patterns, indicating clustering of positive lifestyle behaviors. This supports evidence that health-promoting behaviors tend to co-occur, while unhealthy behaviors often cluster together (27). Physical activity was not significantly associated with dietary habits ($p = 0.320$). However, participants engaging in regular or moderate exercise demonstrated relatively better dietary patterns. This finding is consistent with studies suggesting that dietary habits and physical activity may operate independently among university students (21).

CONCLUSION

Dietary habits among undergraduate nursing students were predominantly moderate, with notable gaps including insufficient fruit and vegetable intake and frequent unhealthy snacking behaviors. Significant associations with gender, residence, and eating practices indicate that dietary patterns are influenced by modifiable behavioral and environmental factors. These findings highlight the need for targeted, evidence-based interventions to promote healthier dietary practices among nursing students.

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