ASSOCIATION OF NUTRITIONAL KNOWLEDGE AND EATING HABITS AMONG STUDENTS AT SIR CJ INSTITUTE OF NURSING HYDERABAD

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ABSTRACT

Background: Nutritional knowledge and eating habits among healthcare students, particularly nursing students, play a crucial role in shaping their future professional practice and personal health outcomes. Understanding the relationship between nutritional awareness and dietary behaviors is essential for developing effective educational interventions and promoting healthy lifestyle practices within healthcare education institutions.

Objective: This study aimed to assess the association between nutritional knowledge and eating habits among students at Sir CJ Institute of Nursing Hyderabad, examining meal consumption patterns, dietary preferences, and factors influencing food choices.

Methods: A cross-sectional descriptive study was conducted among nursing students using a structured questionnaire to evaluate eating behaviors, meal patterns, and nutritional awareness. Data were collected on regular meal consumption, breakfast habits, fruit and vegetable intake, sweet consumption, take-out food preferences, home-cooked meal consumption, hydration practices, and understanding of nutritional balance principles.

Results: The majority of students (91.7%) reported regular meal consumption, with 70.8% consuming breakfast regularly. However, only 39.2% consumed fruits and vegetables regularly, while 42.5% rarely consumed sweets apart from meals. Take-out food consumption showed mixed patterns (30.0% weekly, 28.3% regular), whereas 65.8% regularly consumed home-prepared meals. Nearly all students (96.7%) maintained

adequate daily water intake, and 95.8% acknowledged the importance of nutritionally balanced food, with 81.7% having previously considered nutritional balance concepts.
Conclusion: This study was concluded that nursing students demonstrated strong awareness of nutritional principles and maintained regular meal patterns, significant gaps existed between knowledge and practice, particularly regarding fruit and vegetable consumption and meal preparation independence.

INTRODUCTION

Maintaining good nutritional knowledge and healthy dietary behaviors is vital for promoting individual well-being and preventing long-term health issues. This is especially true for university students, who are at a critical stage of life where lifestyle patterns often form[1]. The university period brings with it numerous lifestyle changes. Students often face academic pressure, limited finances, lack of time, and newfound independence—all of which can negatively impact their eating habits. Many develop irregular meal patterns, rely on convenience foods, and skip important meals such as breakfast[2].

Nutrition is essential for health, growth, and disease prevention. In China, rapid dietary changes have led to increased obesity and nutrition-related illnesses. Although medical students are expected to have good nutritional knowledge, many struggle to apply it in their daily habits[3]. Nutrition is a key factor in promoting health and preventing chronic diseases. Eating behaviors are shaped by physiological, psychological, and social factors, and are especially important during university life. In Iran, unhealthy habits like fast food consumption and skipping meals are common among youth. Nutrition literacy is emerging as a crucial factor in encouraging healthier eating patterns. This study explores how nutrition literacy influences eating behaviors among nursing students [4]. Given their field of study and nature of coursework, university students enrolled in programs related to health and food, such as Nutrition and Dietetics, Culinary Nutrition, and Culinary Management, are expected to have better eating habits than their peers.

The existing literature presents conflicting results regarding whether knowledge of nutrition, as well as cooking methods and techniques, influences the eating habits of university students. It is unknown if knowledge of nutrition and cooking methods within the Puerto Rican student population represents a protective factor that leads them to practice healthy eating habits or if, on the contrary, these students present eating habits similar to those of the rest of the university population[1].

This study aims to investigate how much nursing students at People's Nursing School, Liaquat University of Medical and Health Sciences, Jamshoro, know about nutrition and how that knowledge affects their eating habits.

Methods

Study Design

This study employed a cross-sectional analytical design with a quantitative research approach to assess the association between nutritional knowledge and eating habits among nursing students. The cross-sectional design was selected to capture data at a single point in time, allowing for the examination of relationships between variables without the need for longitudinal follow-up.

Study Setting and Duration

The research was conducted at the Sir CJ Institute of Nursing, Hyderabad, over a defined period from April 2025 to July 2025..

Study Population and Sampling

- The study population consisted of students enrolled in the Bachelor of Science in Nursing program, including individuals from all four academic years (1st to 4th year). Both male and female students were eligible to participate, ensuring gender representation across the sample. The target population consisted of undergraduate students male studying at Sir CJ Institute of Nursing, Hyderabad. Total number of students in this college was 200.

- A convenience sampling technique was used to recruit participants, and a total of 120 students were included in the study. The inclusion criteria comprised students who were currently enrolled in the program, willing to participate voluntarily, and present at the time of data collection.

Sample Size Formula

$n = (N \times Z^2 \times p \times (1 - p)) / ((d^2 \times (N - 1)) + (Z^2 \times p \times (1 - p)))$

Where:
- n = required sample size
- N = population size = 200 students
- Z = Z-score for confidence level (e.g., 1.96 for 95% confidence)
- p = estimated proportion (if unknown, use 0.5)
- d = margin of error (e.g., 0.05 for ±5%)

Calculation:

Using $N = 200$, $Z = 1.96$, $p = 0.5$, and $d = 0.05$:

$n = (200 \times (1.96)^2 \times 0.5 \times (1 - 0.5)) / ((0.05^2 \times (200 - 1)) + ((1.96)^2 \times 0.5 \times (1 - 0.5)))$

$n = (200 \times 3.8416 \times 0.25) / ((0.0025 \times 199) + (3.8416 \times 0.25))$

$n = 192.08 / 1.4579 \approx 120.7$

Final Answer:

A sample size of approximately 120 students out of 200 for a 95% confidence level and ±5% margin of error.

Selection criteria:

Inclusion criteria:

All male students who were studying in Sir CJ Institute of Nursing, Hyderabad.

Students who were willing to participate.

Those students who were present

Exclusion Criteria

Students who had previously received specialized training or workshops.

Students who were absent during any phase of the study.

Data Collection Instrument

Data were collected using a structured, Adopted questionnaire divided into three sections. Section A captured demographic information such as age, gender, and year of study. Section B assessed nutritional knowledge through 10 multiple-choice questions (MCQs) designed to evaluate the students' understanding of core dietary concepts. Section C evaluated eating habits, incorporating a 24-hour dietary recall and a food frequency questionnaire, to obtain a comprehensive picture of participants' recent and habitual food intake.

Data Collection Procedure

Prior to Data collection, the proposal underwent approval from the principal of Sir CJ Institute of Nursing, Hyderabad. The participants were explained about the study's objectives, and their cooperation was requested. Written and verbal consent (refer to Appendix A) was obtained from those who agreed to take part. Questionnaires were then distributed to a total of 120 students' academic years (1st to 4th year).

Data Analysis

Data analysis was performed using Statistical Package for Social Sciences (SPSS), version 27. Descriptive statistics, including frequencies and percentages, were calculated to summarize the demographic data and response patterns. Chi-Square test was used to examine the association between nutritional knowledge and eating

habits, with p value < 0.05 considered significance..

Ethical Considerations

Ethical considerations were upheld throughout the study. Authorization was obtained from the principal of Sir CJ Institute of Nursing, Hyderabad. Participants were provided with an opportunity to take part in the study. Participation was entirely voluntary, and individuals had the freedom to withdraw at any point without providing a reason. Nurses were required to sign an informed consent form, Participants were provided with information about the study's objective, methodologies, potential risks, and benefits prior to participation.

Results

Demographic characteristics of nursing students

Table 1 presents the demographic profile of the nursing students who participated in the study. The majority of participants (95.8%) were aged between 18 and 25 years, with only a small portion (4.2%) falling into the 26 to 30 age group, indicating that the sample largely consisted of younger students typical of undergraduate populations.

In terms of academic distribution, the highest representation came from fourth-year students (38.3%), followed by third-year (34.2%) and second-year students (24.2%). First-year students comprised the smallest group at 3.3%. This distribution suggests a greater participation of senior students in the study, which may reflect a higher level of exposure to academic content, including health and nutrition topics.

Regarding their residence status, 40.8% of the students reported living in rented accommodations, while 35.8% were staying at home with their families, and 23.3% resided in hostels. These living arrangements may influence dietary habits, especially in terms of meal planning, access to home-cooked food, and nutritional autonomy.

Socio-economic status was predominantly categorized as middle class, representing 85.8% of the respondents. A smaller fraction identified as belonging to the lower class (9.2%) and upper class (5.0%).

Table 1 Demographic characteristics of nursing students

Variables	Frequency	Percentage
Age		
18 – 25	115	95.8
26 – 30	5	4.2
Academic year		
First year	4	3.3
Second year	29	24.2
Third year	41	34.2
Fourth year	46	38.3
Residence status		
At home with family	43	35.8
In a rented apartment/room	49	40.8
In a hostel	28	23.3
Socio-economic status		
Lower class	11	9.2
Middle class	103	85.8
Upper class	6	5.0

Frequency Distribution of Eating Habits and Nutritional Awareness among Students

A significant majority of students (91.7%) reported consuming meals on a regular basis, while a small proportion (6.7%) admitted to eating irregularly. Only a few participants indicated rarely (0.8%) or weekly (0.8%) meal intake, which may reflect occasional or inconsistent eating behavior.When asked about breakfast consumption, 70.8% of students reported taking breakfast regularly, whereas 18.3% had an irregular habit, and 10.0% rarely consumed breakfast.

Regarding the consumption of sweets apart from meals, the responses varied. Only 12.5% of students regularly consumed sweets, while 27.5% did so irregularly, and the highest percentage (42.5%) reported rarely eating sweets. Weekly consumption

was noted by 17.5%, reflecting a moderate level of sweet intake outside of main meals.

In terms of fruit and vegetable consumption, only 39.2% of students reported eating them regularly. A further 29.2% consumed them irregularly, while 11.7% rarely included them in their diet, and 20.0% reported weekly intake. The pattern of eating take-out food was relatively mixed. While 30.0% of students consumed take-out food weekly, 28.3% did so regularly. A smaller proportion reported rare (24.2%) or irregular (17.5%) consumption.

Conversely, the intake of meals prepared at home was higher, with 65.8% of students reporting regular consumption. However, a noteworthy number of students ate homemade meals irregularly (13.3%), rarely (12.5%), or weekly (8.3%), which could influence their overall nutritional status.

With regard to hydration, nearly all students (96.7%) reported drinking adequate amounts of water daily, which is a positive finding. In contrast, 44.2% of students admitted to consuming carbonated beverages when eating out, whereas 55.8% did not, indicating mixed practices regarding beverage choices during outings. Most students (95.8%) acknowledged the importance of taking nutritionally balanced food, and 81.7% reported that they had previously considered the concept of nutritional balance in their eating habits.

Table 2 Frequency Distribution of Eating Habits and Nutritional Awareness among Students at Sir CJ Institute of Nursing, Hyderabad

| Variables	Number (%)
Do you eat your meals regularly?	
Regular	110 (91.7)
Irregular	8 (6.7)
Rarely	1 (0.8)
Weekly	1 (0.8)
How often do you have breakfast?	
Regular	85 (70.8)
Irregular	22 (18.3)
Rarely	12 (10.0)
Weekly	1 (0.8)
How often do you take sweets apart from meals?	
Regular	15 (12.5)
Irregular	33 (27.5)
Rarely	51 (42.5)
Weekly	21 (17.5)
How often do you eat vegetables and fruits?	
Regular	47 (39.2)
Irregular	35 (29.2)
Rarely	14 (11.7)
Weekly	24 (20.0)
How often do you eat take-out food?	
Regular	34 (28.3)
Irregular	21 (17.5)
Rarely	29 (24.2)
Weekly	36 (30.0)
How often do you eat meals prepared at home?	
Regular	79 (65.8)
Irregular	16 (13.3)
Rarely	15 (12.5)
Weekly	10 (8.3)
Do you drink adequate water every day?	
Yes	116 (96.7)
No	4 (3.3)
Do you drink carbonated beverages when eating out?	
Yes	53 (44.2)
No	67 (55.8)
Do you accept the concept of taking nutritional balanced food is important?	
Yes	115 (95.8)
No	5 (4.2)
Have you ever considered the nutritional balance	
Yes	98 (81.7)
No	22 (18.3)
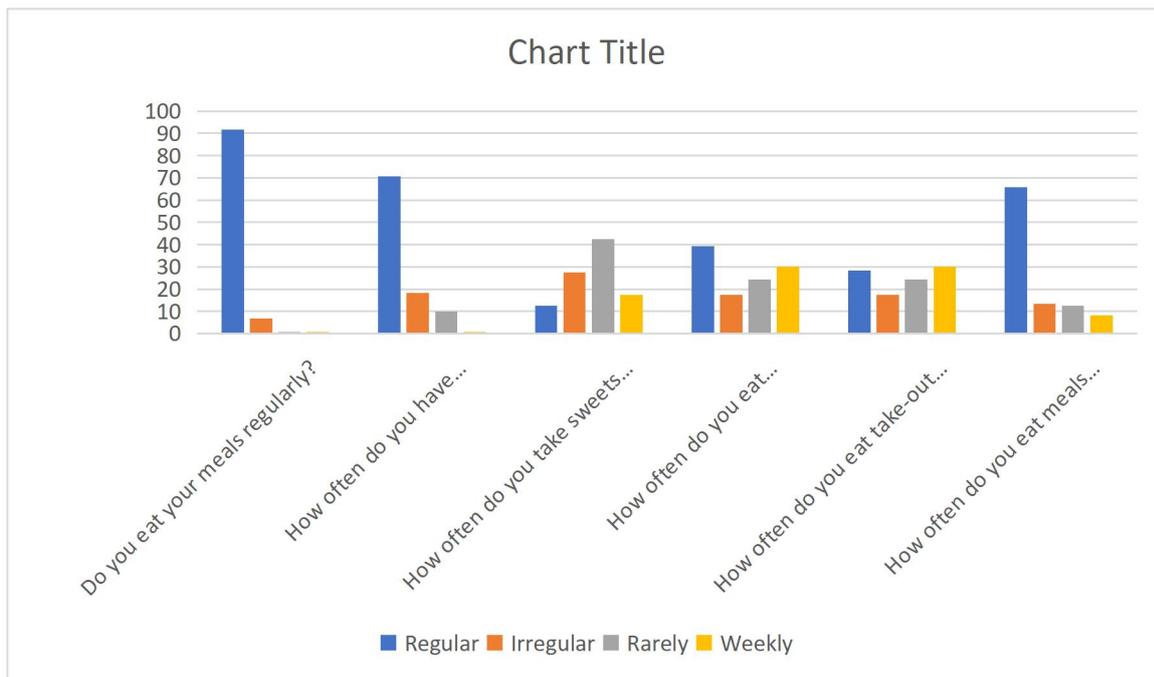
Figure 1 Frequency Distribution of Eating Habits and Nutritional Awareness among Students at Sir CJ Institute of Nursing, Hyderabad
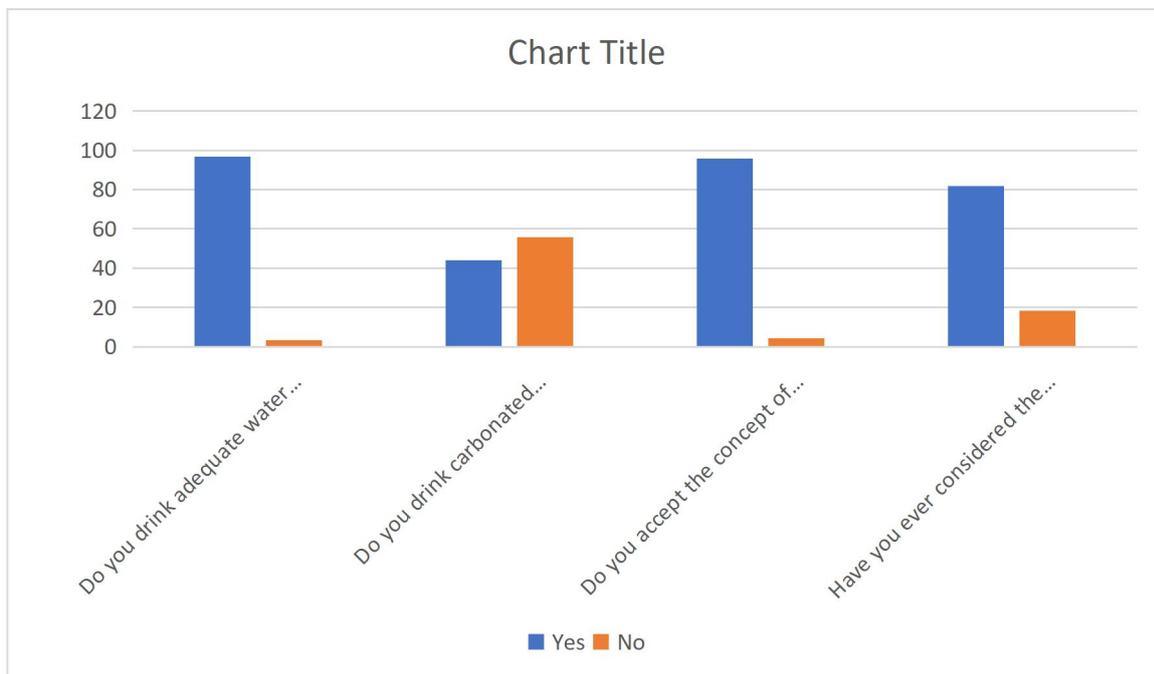

Figure 2 Frequency Distribution of Eating Habits and Nutritional Awareness among Students at Sir CJ Institute of Nursing, Hyderabad

Table 1. Association between Nutritional Knowledge and Eating Habits (n = 120)

Eating Habits Categories	Nutritional Knowledge Categories				Fisher's Exact Test Value	p-value
	Poor (n, %)	Medium (n, %)	Good (n, %)	Total (n)		
Unhealthy eating habits	5 (9.1%)	50 (90.9%)	0 (0.0%)	55		
Moderate eating habits	13 (32.5%)	27 (67.5%)	0 (0.0%)	40	21.446	<0.001
Healthy eating habits	5 (20.0%)	15 (60.0%)	5 (20.0%)	25		
Total	23 (19.2%)	92 (76.7%)	5 (4.2%)	120		

Table 1 shows the distribution of nutritional knowledge across different eating habits among 120 participants. Most participants with **unhealthy (**90.9%) or **moderate eating habits** (67.5%) fell into the medium nutritional knowledge category, while **good nutritional knowledge** was observed only among participants with healthy eating habits (20%). Fisher's Exact Test indicated a **statistically significant association** between eating habits and nutritional knowledge (p < 0.001).

DISCUSSION

The present study found that an overwhelming majority of students (91.7%) reported consuming meals on a regular basis, with only 6.7% admitting to eating irregularly. This finding contrasts with recent research on student meal consumption. A study indicated that a significant portion of university students reported irregular meal consumption, with 44% at breakfast, 20% at lunch, and 23% at dinner[5]. Similarly, another study found that healthy food choices were not a consistent priority for most students, with only 6.3% always selecting healthy options and 40.2% consuming only one serving of fruits and vegetables per day[6]. These discrepancies suggest that while the current study's participants largely maintain regular meal patterns, other studies highlight prevalent irregularities and less healthy dietary habits among university students, possibly influenced by factors such as convenience, affordability, and the availability of healthy options on campus.

In the current study, 70.8% of students reported regular breakfast intake. This finding indicates a relatively high prevalence of regular breakfast consumption among the surveyed students. In contrast, a study revealed a significant irregularity in breakfast consumption among university students, with 44% reporting irregular breakfast habits[5]. While another study focused more broadly on healthy eating choices and dining preferences rather than specific meal regularity, the disparity in breakfast consumption between the current study and the aforementioned study suggests variations in student dietary patterns across different populations or contexts[6]. These differences could be attributed to various factors, including cultural eating habits, access to convenient breakfast options, or awareness campaigns promoting regular meal intake.

This rate is notably higher than the 53% regular breakfast consumption reported among Chilean university students[7] and significantly better than UK university students where approximately 30% skipped breakfast at least most days[8]. However, the 18.3% irregular breakfast consumption and 10.0% rare consumption in the current study indicate room for improvement. The breakfast consumption rate among nursing students may reflect their understanding of nutritional importance, as demonstrated by

the high percentage (95.8%) acknowledging the importance of nutritionally balanced food.

The current study found that 42.5% of students rarely consumed sweets apart from meals, with only 12.5% consuming them regularly. A study on Palestinian university students indicated that frequent sweet consumption was associated with lower academic achievement, highlighting the negative impact of high intake rather than specific consumption frequencies[9]. Similarly, another study observed that college students in Seoul and Gyeonggi areas showed increased sweet food intake under stress, with females preferring sweeter foods when stressed[10]. While these studies do not provide direct percentage comparisons for 'rarely' or 'regularly' consuming sweets, they underscore the prevalence and contextual factors influencing sweet consumption among university students. The relatively lower regular sweet consumption in the current study, especially when compared to Greek nursing students, suggests potential differences in dietary habits or cultural norms regarding sweet indulgence across student populations[11].

The sweet consumption patterns revealed that 42.5% of students rarely consumed sweets apart from meals, while only 12.5% consumed them regularly. This finding is more favorable compared to Greek nursing students where 37.7% consumed sweets 2-3 times per week[11]. The moderate sweet intake pattern (27.5% irregular, 17.5% weekly) in the current study suggests better dietary restraint, which could be attributed to nutritional awareness among nursing students. This pattern aligns with the general understanding that healthcare students tend to have better awareness of the health implications of excessive sugar consumption.

The fruit and vegetable consumption patterns showed that only 39.2% of students consumed them regularly, which is remarkably similar to the 39.2% daily vegetable consumption and 36.1% daily fruit consumption reported among Greek nursing students[11]. However, this rate falls short of optimal recommendations and is concerning given that nursing students should be role models for healthy eating. The finding that 29.2% consumed fruits and vegetables irregularly and 11.7% rarely included them indicates significant nutritional gaps. This pattern is consistent with broader university student populations where low fruit and vegetable consumption is a common concern[8].

Among students at Sir CJ Institute of Nursing, 30.0% reported weekly take-out and 28.3% "regular" consumption, indicating moderate but notable engagement with convenience foods. Compared with our sample, Chinese college students showed higher use, with 61.5% consuming take-out at least once weekly and 24.5% doing so ≥4 times/week, suggesting our weekly rate is roughly half of that benchmark[12]. In a Portuguese cohort of higher-education students, ~80% consumed fast food and ~35% did so 1–6 times per week, again exceeding the weekly prevalence seen in our setting[13]. Whereas the Portuguese study emphasized convenience, price, and taste as primary drivers, the Chinese study linked stronger nutrition-skills literacy to lower high-frequency take-out use, implying that skill-based nutrition education may curb frequent intake[12,13]. Together, these data position our cohort at the lower end of weekly/near-weekly consumption relative to recent international samples, yet they highlight modifiable drivers (skills literacy; food-choice motives) relevant to intervention. Consequently, integrating practical nutrition-skills training and addressing convenience- and price-related motives could further reduce habitual take-out among our students[12,13].

The nearly universal adequate water consumption (96.7%) in the current study represents an excellent finding that exceeds most reported rates in similar populations. However, the 44.2% consumption of carbonated beverages when eating out indicates mixed beverage choices that align

with general university student patterns where unhealthy beverage consumption remains prevalent[8].

The high percentage of students (95.8%) acknowledging the importance of nutritionally balanced food and 81.7% reporting previous consideration of nutritional balance concepts suggests good theoretical awareness. This finding aligns with intervention studies showing that nutrition education can significantly improve knowledge scores, as demonstrated by a study that reported knowledge score improvements from 33.7 ± 4.6 to 52.6 ± 7.2 following educational interventions among nursing students[14].

The current findings suggest that while nursing students demonstrate good awareness of nutritional principles and maintain better meal regularity compared to general university populations, significant gaps remain in optimal dietary practices, particularly in fruit and vegetable consumption and meal preparation independence. The discrepancy between nutritional knowledge and actual dietary practices indicates the need for intervention programs that bridge the knowledge-practice gap, similar to successful interventions reported in the literature [14].

CONCLUSION

This study concluded that nursing students at Sir CJ Institute of Nursing Hyderabad highlights both strengths and shortcomings in dietary behavior. Nursing students generally show an encouraging understanding of nutrition and engage in several healthy habits, reflecting the positive influence of their educational background. However, the findings also reveal a clear gap between knowledge and practice. While students are aware of nutritional guidelines, many struggles to consistently apply them in daily life.

Acknowledgement

Competing interest

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