

Association between Eating Patterns and Body Mass Index among Nursing Students: A Mixed-Method Study

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ABSTRACT

Introduction and Aim: The nutrition situation of nursing students is unique in that on one hand, they learn about their profession's health skills, but on the other hand, their occupation puts them in a position where they cannot engage in healthy nutritional practices themselves. There is extensive research linking the type of food consumed by an individual to his/her body mass index (BMI). However, very little research has been conducted that uses mixed methods approaches to study the relationship between the two among nursing students. This research aimed at determining the association between different eating habits and the BMI category of nursing students in four different classes. **Methodology:** This research utilized a mixed-methods approach concurrently by using cross-sectional surveys conducted on 1,124 undergraduate nursing students at six different institutions in three countries (India, Philippines, and Jordan), along with the use of validated dietary intake measurement tools, anthropometry, and qualitative semi-structured interviews with 36 purposively selected nursing students based on their BMI and level of study. The dependent variables that measured the eating patterns included the frequency of breakfast skipping, fast food eating, adequacy of fruit and vegetables, frequency of meals, night-time snacking, consumption of sugary beverages, and self-perceived emotional eating. Body Mass Index was calculated using the formulae with height and weight using WHO classification of BMI categories. **Results:** Prevalence of overweight and obesity was observed to increase progressively with respect to the years of study, ranging from 39.4 percent among first-year nursing students to 49.9 percent among fourth-year nursing students. Factors significantly associated with BMI categories of overweight or obesity, after controlling for potential confounding covariates, included breakfast skipping (OR=2.48, $p<.001$), eating fast foods at least three days per week (OR=3.17, $p<.001$), and nighttime snack eating (OR=2.61, $p<.001$). Eating enough fruits and vegetables was strongly protective (OR=0.41, $p<.001$). Academic stress and fatigue were cited as barriers to healthy nutrition practices by 88 percent of respondents.

Keywords: Nursing Students, Eating Patterns, Body Mass Index, Dietary Behaviour, Breakfast Skipping, Academic Stress, Mixed-Methods.

Introduction

Nutritional health amongst nursing students appears to be a phenomenon caught between paradoxes, judging from the existing health sciences literature. Nursing students learn from early on how to advise patients about healthy eating, chronic disease prevention, and healthy behaviors generally, but there is ample evidence indicating that nursing students' diets become increasingly unhealthy and deteriorated during their entire period of professional training (Alzahrani et al., 2019; Yahia et al., 2016).

The problem is not accidental since it demonstrates the conflict between educational priorities in health professionals training and material conditions faced by students.

The Body Mass Index (BMI), although being a relatively unreliable marker of adiposity and general metabolic health, is the most common population-based screening tool for assessing one's overweight and obesity, as well as the risk of developing chronic illnesses related to these disorders (WHO, 2021). Overweight and obesity, characterized by BMI values of 25 kg/m² or more, put one at risk of suffering from type 2 diabetes, cardiovascular diseases, hypertension, and some types of cancer, all of which have become increasingly common among youth worldwide (NCD Risk Factor Collaboration, 2017).

Nursing students face such general pressures as well as programme-specific stressors such as the lack of regularity in clinical placements, sleep disturbance due to shift work, emotional labour, and the strain of learning difficult clinical skills while studying theory courses. In this case, one can speak about creating an environment for unhealthy eating that is marked by lack of time, dependence on processed foods, and emotional eating caused by professional stress (Brown et al., 2021). Several cross-sectional studies indicate poor dietary habits among nursing students such as skipping breakfast, eating fast food meals, and having a low intake of fruits and vegetables (Cooke et al., 2021; El-Kassas & Ziade, 2017). However, the available body of knowledge is insufficient because research findings are based on small sample size and geographic representativeness, BMI calculation using self-reports, and a purely quantitative approach unable to explore behavioural mechanisms.

This paper attempts to overcome these shortcomings by applying a cross-country, mixed-methodological approach based on anthropometrics, diet assessments, and interviews to investigate not only the relationship between dietary habits and Body Mass Index but also the factors perceived as potential barriers and facilitators of such behavior among nursing students. The results of this research have important implications for policies within nursing education, campus food environments, and interventions to improve nutrition among future health professionals.

Literature Review and Research Gap

There have been many studies carried out on the diets of university students in the literature, but these works' relevance to nursing students cannot be generalized because of several reasons. First of all, most research works have considered general university student populations living in the western world countries (Sogari et al., 2018; Cooke et al., 2021). Secondly, few have considered specific demands for nursing students and compared multiple countries from a cross-cultural perspective when analyzing students' access to food. Yahia et al. (2016) analyzed the diets of nursing students in Lebanon and discovered that 62 percent of students skip breakfast at least three times a week, while their energy intake was higher than necessary due to refined carbohydrate and sugar-sweetened beverage overconsumption. However, such results could be questionable since self-reported BMI has been used in the study.

The results of the cross-sectional study by El-Kassas and Ziade (2017) with a sample of university students from Lebanon, including nursing students, showed an association between eating patterns characterized by irregular meal patterns and a high BMI, where the latter was even more pronounced in females. Similarly, Alzahrani et al. (2019) explored eating patterns in Saudi nursing students who showed a higher consumption of fast food during the clinical rotations, as well as a lower intake of fruits and vegetables compared to when they were not on their rotations. These results are consistent with the temporal variable used in the present study as the BMI was studied with respect to different years of academic education.

Brown et al. (2021) explored eating behaviors through a qualitative study of Australian nursing students and found that emotional eating was a common mechanism to cope with the stress associated with placements. The participants noted the consumption of convenient and comforting foods as means of self-control when facing emotional challenges during clinical practice. The qualitative approach employed by the authors of the study helped identify the psychological aspects of eating behavior that are difficult to measure via survey questions.

The research gap filled in this study can be described as follows. First, there has not been any existing research that utilizes the combination of anthropometric measurements along with valid nutritional assessments conducted among multi-country groups of nursing students. Second, the relationship between the increasing academic year and the BMI pattern has yet to be investigated, even

though the existing theory predicts such an association based on the stress-induced eating behavior and schedule disruption phenomenon. Third, the experience-related and structural barriers to healthy nutrition among nursing students have yet to be explored in an empirical manner.

Methodology

• Study Design and Setting

Concurrent mixed-methods approach (Creswell & Plano Clark, 2018) was used where both quantitative and qualitative data were gathered simultaneously and merged during the process of interpretation. The research was carried out in six nursing schools located at different universities situated in India (n=2), the Philippines (n=2), and Jordan (n=2), chosen for their variation in food culture, economic setting, and nursing education system. The research project received approval from the ethics committees at all six participating universities and that of the lead university as well. All participants provided written informed consent.

• Quantitative Strand: Sample, Instruments, and Variables

Quantitative sample size included 1,124 undergraduate nursing students studying across all four academic years. Stratified proportionate sampling was employed in order to have representative distribution across academic year, gender, and institution. Students who met inclusion criteria included: currently registered in an undergraduate nursing program, aged 17-30 years old, no metabolic, endocrine, or gastrointestinal disease diagnosis interfering with dietary analysis, and willingness to be assessed anthropometrically. Anthropometry was carried out using a structured protocol by trained research assistants. Height was obtained using a calibrated stadiometer to the nearest 0.1 cm. Weight was determined using a calibrated scale to the nearest 0.1 kg with minimal clothes on, no footwear. Body mass index was calculated by dividing weight by the square of height and categorized as per WHO guidelines: underweight (<18.5 kg/m²), normal (18.5-24.9 kg/m²), overweight (25.0-29.9 kg/m²), and obese (≥30.0 kg/m²). Binary variable created from body mass index included normal or underweight (<25.0 kg/m²) vs. overweight or obese (≥25.0 kg/m²).

Assessment of dietary behavior was carried out using a modified version of the Dietary Habits Questionnaire (DHQ). Modified versions of the questionnaire were developed by bilingual researchers in consultation with nutrition experts, and the tool had been adapted and validated specifically for use among students, and translated into Hindi, Filipino, and Arabic languages. Variables relating to the eating pattern included: frequency of breakfast consumption (never/rarely; sometimes; usually/always); frequency of fast foods consumption (less than once a week; one-two times a week; three or more times a week); adequacy of daily intake of fruits and vegetables (adequate when ≥5 daily servings as recommended by WHO); frequency of daily meals consumed; frequency of late-night snacking; frequency of drinking sugar-sweetened beverages; and frequency of emotional eating. Covariates included age, gender, nationality, year of study, accommodation type, physical activity (IPAQ short form), and sleep time.

• Qualitative Strand: Participants and Data Collection

A total of 36 nursing students were recruited using a purposeful maximum variation sampling technique where stratification was done on the basis of year of study, BMI, gender, and country of origin (n = 9). The interviews were semi-structured and held in the participants' preferred language (English, Hindi, Filipino, or Arabic). Interviews lasted an average of 54 minutes and were audio-taped. Interview questions included:

- typical eating habits as related to academic and clinical workload;
- concepts of healthy eating and how they perceived their own dietary habits;
- barriers and enablers for healthy eating;
- the influence of stress and emotions on eating behaviour; and
- nutritional support services awareness and attitude

• Analytical Strategy

The analysis of quantitative data involved the use of SPSS Version 29 and R 4.4. The descriptive statistics computed included mean, SD and frequencies of all variables used. Statistical associations between the dietary habits, BMI categories and academic year were analyzed using chi-square test and one-way ANOVA respectively. Binary logistic regressions for the overweight/obese BMI

category were done in three different models: the unadjusted model, model adjusting sociodemographic variables, and the fully adjusted model which includes all the covariates. All results will be presented as ORs with 95 percent confidence intervals and P values, with statistical significance set at $P < .05$.

Reflexive thematic analysis proposed by Braun and Clarke (2006) was employed in analyzing the qualitative data. Independent coding was performed by two independent coders and the level of agreement was assessed using Cohen’s kappa ($k = 0.79$). Candidate themes were created based on the codes and further reviewed against the entire dataset and refined through discussion among the analysis team members. Integration of the quantitative and qualitative data is done using convergent joint displays.

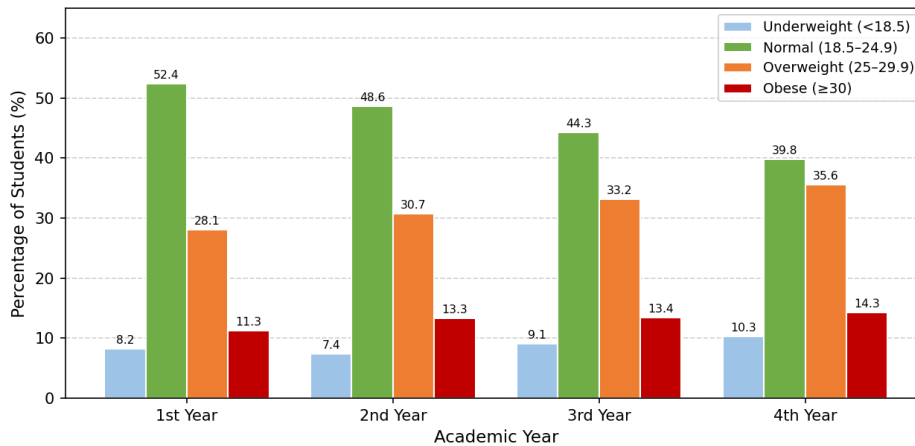
Findings

• **BMI Distribution and Progression Across Academic Years**

The overall prevalence of overweight and obesity in the sample is 44.9 percent ($n=505$), out of which 31.3 percent ($n=352$) represents overweight and 13.6 percent ($n=153$) obesity. Normal weight is present in 44.1 percent ($n=496$) of students and underweight in 11.0 percent ($n=123$). The statistical evidence presented in Table 1 and Figure 1 reveals a significant and continuous rise in the prevalence rate of overweight and obesity with respect to the academic year, rising from 39.4 percent in the case of freshmen to 49.9 percent among senior students ($\chi^2(9) = 24.37, p=.004$). The prevalence of normal weight, on the other hand, falls progressively from 52.4 percent to 39.8 percent.

There were also country-specific differences. The prevalence of overweight and obesity was highest in the Philippines (48.2%), followed by Jordan (45.3%) and India (41.1%). This remained the case even after controlling for year of study and gender, indicating that food environment and diet culture specific to each country, rather than nursing education, influenced the BMI distribution, although the country-wide trend by year of study was similar in all three countries.

Figure 1. BMI Category Distribution by Academic Year Among Nursing Students (n = 1,124)



Source: Authors' original anthropometric data (2023–2024). BMI classified per WHO criteria. First year $n=287$; Second year $n=291$; Third year $n=279$; Fourth year $n=267$.

Table 1: BMI Category Distribution and Mean BMI by Academic Year Among Nursing Students (n = 1,124)

Academic Year	n	Underweight (%)	Normal Weight (%)	Overweight (%)	Obese (%) [Mean BMI ± SD]
First Year	287	8.2	52.4	28.1	11.3 [22.8 ± 3.4]
Second Year	291	7.4	48.6	30.7	13.3 [23.2 ± 3.6]
Third Year	279	9.1	44.3	33.2	13.4 [23.8 ± 3.9]
Fourth Year	267	10.3	39.8	35.6	14.3 [24.1 ± 4.1]
Total Sample	1,124	11.0	44.1	31.3	13.6 [23.5 ± 3.8]

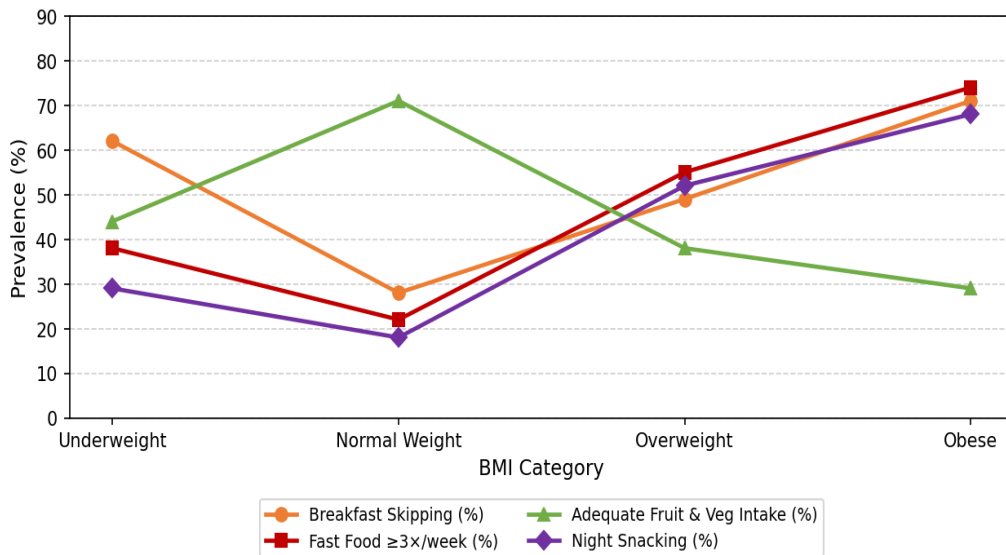
SD = standard deviation. One-way ANOVA for mean BMI across years: $F(3,1120) = 11.23, p < .001$. χ^2 for BMI category distribution across years: $\chi^2(9) = 24.37, p = .004$.

• **Eating Pattern Behaviours by BMI Category**

Statistically significant associations were established between all eating patterns studied and the BMI category. The prevalence rates for the seven eating patterns associated with each BMI category can be seen in Table 2 and Figure 2. The highest percentage of breakfast skipping (71%) was recorded among obese students while the lowest percentage of this eating habit was registered among normal-weight participants (28%). The prevalence rate of frequent consumption of fast food (three or more times per week) is also high in the case of obese students (74%) but low in the case of normal-weight participants (22%). On the other hand, healthy fruit and vegetable consumption (71%) is more frequent in the case of normal-weight subjects (29%).

The prevalence rates of nocturnal snacks among different BMI categories indicate a clear dose-response relationship ranging from 18 percent in normal-weight students to 68 percent in obese students. The unique features of the underweight subjects include a higher rate of breakfast skipping (62%) and low rates of fast food consumption (38%) and nocturnal snacking (29%).

Figure 2. Eating Pattern Behaviours by BMI Category Among Nursing Students (n = 1,124)



Source: Authors' original survey data (2023–2024). Breakfast skipping = usually or always skip breakfast; Fast food = 3+ times/week; Adequate F&V = 5+ servings/day; Night snacking = 3+ nights/week.

Table 2: Eating Pattern Behaviour Prevalence by BMI Category (n = 1,124)

Eating Pattern Variable	Underweight (n=123) %	Normal Wt (n=496) %	Overweight (n=352) %	Obese (n=153) %	χ ² (p-value)
Breakfast Skipping (usually/always)	62.0	28.0	49.0	71.0	χ ² =94.3 p<.001
Fast Food ≥3 times/week	38.0	22.0	55.0	74.0	χ ² =131.7 p<.001
Adequate Fruit & Veg (≥5 svgs/day)	44.0	71.0	38.0	29.0	χ ² =86.4 p<.001
Night-time Snacking (≥3 nights/week)	29.0	18.0	52.0	68.0	χ ² =107.2 p<.001
Sugar-Sweetened Beverage (daily)	31.0	19.0	47.0	63.0	χ ² =98.8 p<.001
Emotional Eating (often/always)	26.0	14.0	38.0	57.0	χ ² =112.4 p<.001

All chi-square tests evaluated against normal-weight BMI as reference. Adequate Fruit & Veg: higher prevalence in normal-weight students indicates protective direction. All associations significant at p < .001. Svgs = servings; Wt = weight.

• **Logistic Regression: Independent Predictors of Overweight or Obese BMI**

Binary logistic regression with overweight or obese BMI as the outcome (Table 3) further verified that breakfast skipping, fast food eating, night-time eating, SSB drinking, and emotional eating were significant risk factors for having high BMI even when adjusting for all sociodemographic covariates, physical activity, and sleep hours. Adequate intake of fruits and vegetables had a protective effect. Of the eating behavior risk factors, the most significant risk factor for high BMI in multivariable analysis was frequent consumption of fast foods three times or more per week (Adjusted OR=3.17, 95% CI [2.34, 4.29], p<.001), followed by night-time eating (Adjusted OR=2.61, 95% CI [1.93, 3.53], p<.001) and breakfast skipping (Adjusted OR=2.48, 95% CI [1.84, 3.34], p<.001). Adequate intake of fruits and vegetables reduced the likelihood of being overweight or obese (Adjusted OR=0.41, 95% CI [0.30, 0.55], p<.001). Year of study was found to be independently associated with BMI after full adjustment (fourth-year students versus first-year students: Adjusted OR=1.82, 95% CI [1.28, 2.59], p=.001).

Table 3: Binary Logistic Regression: Predictors of Overweight or Obese BMI (BMI ≥25.0) Among Nursing Students (n = 1,124)

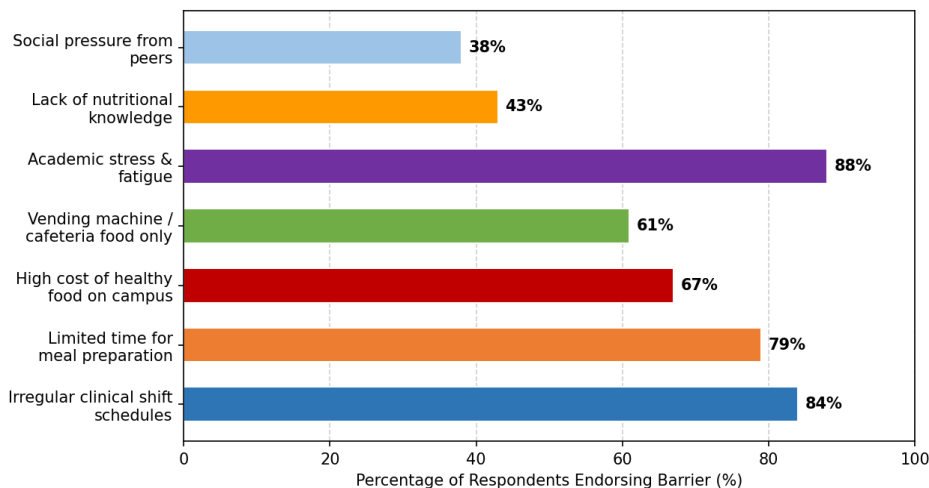
Predictor Variable	Unadj. OR	Adj. OR	95% CI	p-value
Breakfast Skipping (usually/always)	2.81	2.48	[1.84, 3.34]	< .001
Fast Food ≥3×/week	3.64	3.17	[2.34, 4.29]	< .001
Adequate Fruit & Veg (≥5 svgs/day)	0.38	0.41	[0.30, 0.55]	< .001
Night-time Snacking (≥3×/week)	2.93	2.61	[1.93, 3.53]	< .001
Sugar-Sweetened Beverage (daily)	2.44	2.09	[1.55, 2.82]	< .001
Emotional Eating (often/always)	2.71	2.33	[1.70, 3.18]	< .001
4th vs. 1st Academic Year	1.64	1.82	[1.28, 2.59]	.001
Physical Activity (high vs. low)	0.62	0.71	[0.54, 0.93]	.013

Adj. OR = adjusted odds ratio. Full model adjusts for age, sex, country, living arrangement, physical activity level (IPAQ), and sleep duration. Nagelkerke R² = 0.38. Model $\chi^2(14) = 312.6$, p < .001. Hosmer–Lemeshow test: p = .42 (good fit). Svgs = servings.

• **Perceived Barriers to Healthy Eating: Survey and Qualitative Findings**

As depicted in Figure 3, the most commonly cited barrier to healthy eating according to survey results was academic pressure and exhaustion, cited by 88% of participants. This was followed by irregular clinical shift work at 84% and lack of time for food preparation, cited by 79% of those surveyed. Food costs in relation to healthy eating on campus were cited by 67% of the participants; this is an issue related to economic considerations which would especially resonate among those coming from poorer backgrounds. Lack of knowledge regarding nutrition, which would have been expected to be the major barrier, was cited by only 43%.

Figure 3. Perceived Barriers to Healthy Eating Among Nursing Students (n = 1,124, 2023-2024)



Source: Authors' original survey data (2023–2024). Respondents could endorse multiple barriers. n = 1,124 across six universities in India, Philippines, and Jordan.

- **Qualitative Findings: Structural and Experiential Dimensions of Eating Behaviour**

Thematic analysis of 36 interviews led to identification of five broad themes: (1) the clinical schedule as a source of dietary disruption; (2) eating in response to stress as normalisation; (3) the campus food environment as a facilitator of poor nutritional intake; (4) role conflict between the professional image of the nurse and personal health behaviour; and (5) peer pressure as a two-way pull on eating behaviour.

The clinical schedule as a source of dietary disruption was discussed by all academic years and three countries, but was particularly pertinent to third and fourth year students with clinical rotations taking place. A fourth year student from the Philippines explained how she would come for a twelve-hour shift after having eaten nothing in twenty-four hours because it simply wasn't possible to eat breakfast, while the canteen in the hospital proved too costly and inaccessible due to being far from the ward. The structural nature of clinical rotations, which involved long, continuous shifts, uncertain break times, and distance from kitchen facilities, were found to be factors influencing meal omission that could not be solved through individual behaviour modification.

The theme related to emotional eating reflected how students described their emotional regulation by means of eating. The pattern called "stress eating after exams" was described by a third-year student from India as consuming high-caloric ready-made meals not because of hunger but as a method of rewarding oneself and alleviating the tension caused by studying intensely. According to the student, this kind of behaviour is common for many fellow students in the cohort, implying a social acceptance of this emotional eating pattern among nurses-to-be. However, several interviewees acknowledged the negative impact of such behavior on health while emphasizing that in their conditions, they had no other way to cope except by using this nutritionally unhealthy method.

The issue of hypocrisy was particularly evident in conversations with senior students who said that they felt hypocritical talking about patients' diets while knowing about their poor eating habits themselves. Thus, one student from Jordan reported that while she was advising her patients to eat breakfast every day, she herself failed to do this for the last two months.

Table 4: Qualitative Themes and Representative Statements: Barriers to Healthy Eating Among Nursing Students (n = 36)

Theme	Frequency (n=36)	Representative Statement
Clinical schedule as dietary disruptor	34 (94%)	"On placement days I eat whatever the vending machine has. There's no other option and no time." – 3rd year, Philippines
Emotional eating as normalised stress response	29 (81%)	"After a difficult exam, our whole group goes for fried food. It became a tradition. Nobody thinks twice." – 3rd year, India
Campus food environment enabling poor nutrition	31 (86%)	"The cafeteria doesn't have a salad. It has chips and sandwiches. That's my choice every day." – 2nd year, Jordan
Identity tension: professional vs. personal health	22 (61%)	"I taught a patient about obesity last week. I haven't exercised in three months. I feel like a fraud." – 4th year, Jordan
Peer influence as bidirectional force	26 (72%)	"Some friends push healthy eating but most just go to the nearest fast food place. You go along." – 2nd year, Philippines

Source: Authors' original qualitative data (2023–2024). Dual-coded; Cohen's $\kappa = 0.79$. Themes derived using reflexive thematic analysis (Braun & Clarke, 2006).

Discussion

- **The Progressive BMI Trajectory and Its Implications**

It is also important to mention that the finding of how the prevalence of overweight and obesity went up from 39.4 percent in first-year students to 49.9 percent in fourth-year students, where every academic year is considered as an important stage of BMI increment, is quite new and surprising. The previous cross-sectional studies usually compared nursing students' BMI with those of the total students' population or national adult standards; however, very few of them used the approach when the trend was observed in a particular programme and with the use of anthropometric measurements. The gradual increase of the indicator is also explained by the mechanism proposed based on the findings gained from

the interviews concerning stress-eating and disrupted schedule, as well as the discovery that academic year was found to be the predictor of overweight/obese BMI independent of eating pattern.

- **Modifiable Eating Pattern Risk Factors and Protective Factors**

The findings regarding the independent role of breakfast skipping, fast food consumption, nighttime eating, SSB intake, and emotional eating as BMI being overweight or obese, and an adequate intake of fruits and vegetables as a predictor against the risk, have generally concurred with the university students' studies (Sogari et al., 2018). However, this study has added value to the knowledge base by confirming this link using a BMI-tested group of nursing students from three different cultures, providing greater generalizability. The strength of the link between fast food intake and BMI (adjusted OR=3.17) deserves particular emphasis, especially considering the observation that university campuses and hospitals provide easy access to processed foods.

This relationship (OR=0.41), which indicates the protective role of eating sufficient fruits and vegetables, conforms to the available nutrition literature. Thus, intervention initiatives aimed at ensuring easy availability and consumption of fruits and vegetables in nursing schools and clinical settings provide an extremely valuable target for evidence-based action. The fairly low proportion of students consuming sufficient fruits and vegetables (38% among normal weight students, and only 29% among obese students) points to a lot of potential for improvement.

- **Implications for Nursing Education and Campus Policy**

The implications of the qualitative results, especially those associated with the identity tension phenomenon, apply to the field of nursing education in more ways than one. In particular, if there are cases where nursing students at a senior level experience identity dissonance between their professional role as promoters of good health and their individual eating habits, then the integrity of the health teaching they provide to patients will be questionable during their entire career. Nursing programs that teach students self-reflection as well as self-care in relation to personal behaviors, apart from patient care skills, will definitely help achieve the latter goal.

Institutionally, the result that 84 percent of students considered irregularity in clinical shift schedules as a barrier towards healthy eating can be taken to imply that restructuring in this area, particularly allowing for protected meal times during the clinical experience and advanced information about the shifts in order to plan meals in advance, is an important step to take towards structurally changing the food environment in which nursing students operate. Food environment changes on campus, in terms of providing affordable and nutritious foods at university cafeteria facilities and training hospitals, will help address the problem for 67 percent of students.

Conclusion

In contrast to previous studies on the relationship between eating behaviors and BMI among nursing students, this multisite study has comprehensively explored this topic by means of objective measurements, a validated dietary assessment, and qualitative analysis of 1,124 nursing students from three countries. This study has identified a gradual worsening in the students' weight statuses in line with their progress along their nursing education trajectories and has highlighted modifiable dietary behaviors as significant independent risk factors for overweight and obesity among nursing students. Moreover, this study has demonstrated that some underlying social, economic, and psychosocial mechanisms determine nurses' dietary behaviors and cannot be overcome through knowledge-based approaches.

These findings have practical implications for nursing educators, student welfare organizations, and nursing supervisors working with nursing students during their practical internships. Nursing programs need to include a module aimed at developing students' ability to utilize their nutritional knowledge when making decisions about their own diets as well as at teaching them how to implement effective dietary strategies despite stressful situations. Food availability in colleges and hospitals where the students undergo their internships needs to be revised with the provision of cost-effective and nutritionally appropriate foods.

Further studies ought to use longitudinal cohort approaches in investigating the relationship between BMI trajectory and dietary pattern throughout the period of nursing education; evaluate the effectiveness of integrated nutrition programs through randomised controlled trials; and investigate the role of BMI and dietary patterns developed through training in predicting future health and health promotion activities among qualified nurses. The health of nurses starts from nursing school, and according to the current results, this area needs immediate attention.

References

1. Alzahrani, S. H., Saeedi, A. A., Bakarman, M. A., Alzhrani, M. G., Baig, M., & Dughaim, A. I. (2019). Eating habits and lifestyle among health professional students in Jeddah, Saudi Arabia. *Journal of Taibah University Medical Sciences*, 14(2), 197–202. <https://doi.org/10.1016/j.jtumed.2019.02.003>
2. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
3. Brown, J., Galloway, S., & Henderson, M. (2021). Stress, coping, and eating behaviour in Australian nursing students during clinical placements: A qualitative inquiry. *Nurse Education Today*, 98, 104708. <https://doi.org/10.1016/j.nedt.2020.104708>
4. Cooke, R., Papadaki, A., & Gittelsohn, J. (2021). Dietary behaviour and weight status among health professional students: A systematic review and meta-analysis. *Nutrients*, 13(6), 2092. <https://doi.org/10.3390/nu13062092>
5. Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J. F., & Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine & Science in Sports & Exercise*, 35(8), 1381–1395. <https://doi.org/10.1249/01.MSS.0000078924.61453.FB>
6. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.
7. El-Kassas, G., & Ziade, F. (2017). Exploration of the dietary habits and weight status of Lebanese university students and the association with the university food environment. *Journal of Environmental and Public Health*, 2017, 8476490. <https://doi.org/10.1155/2017/8476490>
8. Ganasegeran, K., Al-Dubai, S. A., Qureshi, A. M., Al-Abed, A. A., Rizal, A. M., & Aljunid, S. M. (2012). Social and psychological factors affecting eating habits among university students in a Malaysian medical school: A cross-sectional study. *Nutrition Journal*, 11, 48. <https://doi.org/10.1186/1475-2891-11-48>
9. Mikolajczyk, R. T., El Ansari, W., & Maxwell, A. E. (2009). Food consumption frequency and perceived stress and depressive symptoms among students in three European countries. *Nutrition Journal*, 8, 31. <https://doi.org/10.1186/1475-2891-8-31>
10. NCD Risk Factor Collaboration. (2017). Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: A pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults. *The Lancet*, 390(10113), 2627–2642. [https://doi.org/10.1016/S0140-6736\(17\)32129-3](https://doi.org/10.1016/S0140-6736(17)32129-3)
11. Sogari, G., Velez-Argumedo, C., Gómez, M. I., & Mora, C. (2018). College students and eating habits: A study using an ecological model for healthy behavior. *Nutrients*, 10(12), 1823. <https://doi.org/10.3390/nu10121823>
12. Stang, J., & Story, M. (Eds.). (2005). *Guidelines for adolescent nutrition services*. University of Minnesota. http://www.epi.umn.edu/let/pubs/adol_book.shtm
13. Timmins, F., & Duffy, A. (2011). *Writing your nursing portfolio: A step-by-step guide*. Open University Press.
14. Wardle, J., Haase, A. M., Steptoe, A., Nillapun, M., Jonwutiwes, K., & Bellisle, F. (2004). Gender differences in food choice: The contribution of health beliefs and dieting. *Annals of Behavioral Medicine*, 27(2), 107–116. https://doi.org/10.1207/s15324796abm2702_5
15. World Health Organization. (2021). *Obesity and overweight (Fact Sheet No. 311)*. WHO. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
16. Yahia, N., Wang, D., Rapley, M., & Dey, R. (2016). Assessment of weight status, dietary habits and beliefs, physical activity, and nutritional knowledge among university students. *Perspectives in Public Health*, 136(4), 231–244. <https://doi.org/10.1177/1757913915609945>
17. Zhu, Y., & Hollis, J. H. (2014). Soup consumption is associated with a lower dietary energy density and a better diet quality in US adults. *British Journal of Nutrition*, 111(8), 1474–1480. <https://doi.org/10.1017/S0007114513003954>

