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The Impact of Nutritional Intake and Meal Skipping on the Academic Performance of Nursing Students: A Cross-Sectional Study in a Philippine Catholic University

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ABSTRACT

Background: Nutrition plays a crucial role in overall well-being and academic performance. Skipping meals and imbalanced dietary intake may affect cognitive function and learning outcomes. Therefore, this study aims to determine the correlation between nutritional intake, meal skipping, and academic performance among third-year nursing students at a Philippine Catholic university. **Methods:** In this study, a quantitative, descriptive-correlational research design was employed. A total of 77 nursing students were selected using total population sampling. Moreover, data collection involved a survey assessing demographic characteristics, dietary habits, and academic performance. The relationship between nutritional intake, meal skipping, and academic performance was analyzed using Pearson's r-correlation. **Results:** The majority of respondents were female, aged 20-21 years, with heights ranging from 152 to 186 cm. Furthermore, breakfast was the most frequently skipped meal. Academic performance was classified as "good," with a mean general weighted average (GWA) of 81.75±2.17%. Nutritional intake analysis also revealed deficiencies in essential food groups, except for dairy products, while chips and sweets were consumed in excess. Correlation analysis showed no significant relationship between nutritional intake and academic performance, nor between the frequency of skipped meals and academic achievement. **Conclusions:** This study found no significant correlation between nutritional intake, meal skipping, and academic performance among nursing students. To improve students' nutritional habits, collaborations with nutritionists and enhanced nutrition and diet therapy programs are recommended.

Introduction

Nutrition plays a vital role in achieving the 2030 Agenda for Sustainable Development, particularly in addressing the global nutritional crisis that encompasses both hunger and obesity (Mathews *et al.*, 2024). As a cornerstone of several Sustainable Development Goals (SDGs), nutrition is central to SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) (Mathews *et al.*, 2024). Addressing the global nutritional crisis requires concerted efforts to improve food security,

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reduce malnutrition, and promote sustainable food systems. Enhancing agricultural productivity and ensuring access to healthy diets are also critical steps toward achieving these goals.

In the Philippines, malnutrition is compounded by rising obesity rates. The 2019 Expanded National Nutrition Survey showed that 3.5% of children under five are overweight, with higher prevalence rates observed among older children and adolescents (Department of Science and Technology and Food and Nutrition Research Institute DOST-FNRI, 2022). It was reported one in three Filipino college students has poor dietary habits (Acampado and Valenzuela, 2018). As future healthcare professionals, nursing students, are expected to model healthy behaviors. Their curriculum includes Nutrition and Diet Therapy to equip them with knowledge on proper nutrition; however, applying this knowledge in practice remains challenging (Alzahrani *et al.*, 2020). Additionally, the demands of university life and medical studies negatively impact nursing students' nutritional intake due to stress and busy schedules (Dahl *et al.*, 2021).

A study emphasize the food pyramid's importance for balanced diets (Sarac and Butnariu, 2020), while the other highlight the Western norm of three meals a day plus snacks (Paoli *et al.*, 2019). Snacking is common and influences health throughout life (Almoraie *et al.*, 2021). Food intake is affected by various factors, including economic status, with lower-income individuals having poorer diet quality (French *et al.*, 2019). Healthy eating habits, involving balanced diets, are crucial as students transition to independent living, impacting their food choices and nutritional intake (Bondoc *et al.*, 2019). It was reported that a balanced diet improves cognitive function and academic performance. Healthy eating habits predict academic success, while poor eating habits lead to complications and health risks (Adelantado-Renau *et al.*, 2019).

Skipping meals, especially breakfast, is common among students due to busy schedules and other reasons (Pendergast *et al.*, 2016). Meal skipping is linked to obesity, poor dietary choices, and chronic diseases (Sholeye *et al.*, 2021). Furthermore, skipping breakfast affects body mass index (BMI), energy levels, and academic performance (Duvick *et al.*, 2018). A study found a significant relationship between skipping breakfast and lower academic performance (Sofar *et al.*, 2019). Similarly, The result of a cross-sectional study among college students reported that poor eating habits, including meal skipping, were associated with lower academic performance (Kapoor *et al.*, 2023). Gande *et al.* found that frequent consumption of unhealthy foods and irregular eating patterns negatively impacted students' academic achievement (Gande *et al.*, 2023). However, not all studies reported a strong association. For instance, Asmare *et al.* conducted a cross-sectional study in Ethiopia and found that while malnutrition was present among school children, it was not significantly correlated with academic performance after adjusting for confounding factors (Asmare *et al.*, 2018). Similarly, Ibrahim *et al.* observed that although unhealthy dietary habits were common among health sciences students, no direct significant effect on academic performance was established (Ibrahim *et al.*, 2020).

These conflicting findings highlight the necessity of conducting the present study. Given that previous research has shown both positive and null associations between nutritional intake, meal-skipping behaviors, and academic outcomes, it is important to explore this relationship further in the context of nursing students in a Philippine Catholic university. Understanding whether and how nutrition affects academic performance within this specific population can help tailor interventions to promote healthier eating behaviors and support academic success.

Lunch skipping is also prevalent but less studied. Post-lunch dip affects cognitive functions, with high-carbohydrate and fatty meals leading to tiredness and inefficiency (Chaturvedi *et al.*, 2021). Academic performance is influenced by nutritional intake, with balanced nutrition linked to better cognitive function and academic outcomes (Shi and Qu, 2022). Poor nutrition leads to health

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issues that disrupt learning, such as absenteeism due to illness (Ross and Anderson, 2010). Nursing students need to apply their knowledge of nutrition to promote health and self-care, balancing their academic commitments with healthy eating habits.

Theoretical framework

Physiological needs are the most important, and if they are not met, they will be the biggest motivating factor for an individual. If hunger is the issue, all other needs and desires will be suppressed to satisfy hunger. A learner may act out and cause disruptions or be insubordinate because the learner's first concern is not learning but rather obtaining food (Burleson and Thoron, 2014). This study uses Maslow's Hierarchy of needs, wherein the body's needs must be satisfied before the authors proceed to a much higher order of needs. The progress can be disturbed due to an individual's inability to satisfy the lower needs; thus, the movement is not unidirectional because an individual may progress to much higher needs, and they may go back to their previous stages. For instance, an individual who has not had breakfast or lunch will have a sense of hunger which in turn causes an individual to have a change in behavior, attention, and focus; thus, it directly influences the individual's action. Students reach their full learning potential when all levels of Maslow's Hierarchy of needs are met. This is because, according to Maslow's Hierarchy of needs theory, each learner has needs that must be satisfied in order to enhance learning. As a student progresses up on the hierarchy, his or her motivation improves, and as a result, the student learns to a greater extent.

Conceptual framework

The framework illustrates the relationship between independent and dependent variables. The independent variable is nutritional intake, including skipping meals, food quality, and quantity. Skipping meals refers to missing any meal or snack. Moreover, quality involves consuming a variety of food groups in balanced proportions, while quantity refers to serving sizes. The dependent variable is academic performance, assessed qualitatively based on students' General Weighted Average (GWA) classifications. The research aims to explore the link between nutritional intake and academic performance, building on previous findings which suggests improved academic performance with healthier dietary habits (Khan *et al.*, 2022).

Materials and Methods

Research location, design and participants

The study was conducted at a Philippine Catholic university located in the provincial capital of Nueva Vizcaya. The institution upholds the core values of excellence, innovation, communion, and passion for Christ's Mission. In December 2022, the university was recommended for certification by the International Organization for Standardization (ISO) and, in the 2023–2024 Global Best Value University rankings, it achieved a notable standing among 243 universities in the Philippines.

This study employed a quantitative research design, specifically a descriptive-correlational approach, to examine the relationship between nutritional intake, meal-skipping behaviors, and academic performance among third-year nursing students at a Philippine Catholic university. The descriptive method was utilized to present the profile of respondents in terms of gender, age, height, weight, meal-skipping frequency, times of the day meals were skipped, GWA, and nutritional intake in terms of quantity and quality. Correlational analysis was conducted to identify any significant associations between nutritional intake, meal skipping, and academic performance. This approach provided a broader and more precise understanding of the study variables and their interrelationships.

The participants of the study were third-year nursing students selected through total population sampling. According to Crossman (2020), total population sampling involves studying the entire population of interest when all members share specific traits relevant to the research. The total population consisted of 124 students across sections C, D, and E of the third-year nursing class during the second semester of academic year

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2023–2024. After applying inclusion and exclusion criteria, 77 students participated as final respondents. Only regular students who had completed the nutrition and diet therapy course and had no incomplete grades were included. Students from sections A and B, who were involved in the pilot testing, and irregular students were excluded.

Research instrument

A researcher-made questionnaire, developed based on the food pyramid of the U.S. Department of Agriculture, was used to collect the required data. The questionnaire had four parts: (1) demographic profile; (2) quantity and quality of nutritional intake across six food categories; (3) fluid intake; and (4) frequency and timing of meal skipping. Nutritional intake in terms of quantity was assessed using standard serving sizes for each food category. Face and content validation were conducted by three experts prior to pilot testing. Moreover, the instrument's reliability was assessed using Cronbach's alpha, resulting in an acceptable internal consistency ($\alpha \geq 0.71$). To ensure confidentiality, respondents' names were kept optional on the questionnaire, and only consent forms included identifiers for GWA access.

Treatment of data

The nutritional intake of the respondents was assessed both quantitatively and qualitatively. The total number of servings consumed in each food group was computed using standard serving measurements indicated in **Table 1**). To classify diets, the recommended daily servings for each food group were used as criteria (**Table 2**). Then, respondents whose intake met the recommended number of servings across all food groups were classified as having a balanced diet; any excess or inadequate intake in even one food group was classified as an imbalanced diet.

Table 1. Classification of diet.

Variables	Serving
Carbohydrates	
Bread	1 serving of bread with the size of a compact disk and ½ inch thick = 2 slices of bread
Rice	1 serving of rice = ½ cup of cooked rice
Pasta	1 serving of pasta = 1 cup cooked pasta
Cereal	1 serving = 1 cup
Root crops (potato, sweet potato, taro, cassava)	1 serving = 1 cup diced
Proteins	
Beef	1 serving = size of a deck of playing cards
Pork	1 serving = size of a deck of playing cards
Fish	1 serving = the size of a bank check
Egg	1 serving = 2 egg
Beans	1 serving = ½ cup of cooked beans
Nuts	1 serving = ½ cup
Dairy products	
Cheese	1 serving = 1 pair of dice
Yakult / Probiotic drinks	1 serving = 8 oz/cup
Vegetables	
Raw leafy vegetables	1 serving = 1 cup
Cooked or chopped leafy vegetables	1 serving = ½ cup
Non-leafy vegetables (raw or chopped)	1 serving = ½ cup
Fruits	
Whole apple, orange, pear	1 serving = size of a tennis ball
Banana	1 serving = 6-7 inches
Chopped, cooked, or canned fruits	1 serving = 1 cup
Chips and sweets	Maximum allowed amount to take 1-2 times a week in small amounts Use sparingly

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Academic performance was measured through the respondents' GWA, which was categorized into qualitative descriptions (distinguished, excellent, very good, good, passing, or failed) based on grade ranges presented in **Table 3**. This classification allowed for a non-discriminatory and ethical analysis of academic performance.

Table 2. Criteria of diet

Carbohydrates = 6-11 servings/ day Proteins = 2-3 servings/ day Dairy Products = 2-3 servings/ day Vegetables = 3-5 servings/ day Fruits = 2-4 servings/ day Fats, oils, and sweets = 1-2 times a week Water = 8-10 glasses	Balanced diet
Any excess or inadequate intake in even just one of the food groups	Imbalanced diet

Table 3. Qualitative description of GWA.

Percent Grade	Qualitative description
96-100	Distinguished
90-95	Excellent
84-89	Very Good
81-83	Good
75-80	Passing
74 and below	Failed

Data gathering procedure and ethical consideration

Ethical clearance (SMUREB Code 2023 327) was obtained from Saint Mary's University's Ethics Review Board. Approval from the Dean of the School of Health and Natural Sciences was secured to conduct pilot testing among sections A and B. Pilot testing also used online Google Forms distribution, resulting in 44 responses. For the main data collection, printed questionnaires were distributed personally to sections C, D, and E due to internet access limitations. Informed consent was obtained prior to participation. For GWA data, written consent forms were submitted to the Data Privacy Officer and University Registrar. Moreover, confidentiality was maintained by using respondent ID codes during data analysis.

Data analysis

The collected data were encoded and analyzed using descriptive and inferential statistical methods. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were utilized to summarize the respondents' demographic characteristics, meal-skipping behaviors, nutritional intake, and academic performance categories. Pearson's product-moment correlation coefficient (Pearson's r) was employed to determine the relationship between nutritional intake and academic performance, as well as between meal-skipping frequency and academic performance. Statistical significance was set at P-value<0.05. Furthermore, correlation coefficients were interpreted qualitatively according to the following categories:

- +0.80 to +0.99: Very high correlation
- +0.60 to +0.79: Moderately high correlation
- +0.40 to +0.59: High correlation
- +0.20 to +0.39: Moderately low correlation
- +0.01 to +0.19: Very low correlation
- 0: No Correlation

Cross-tabulation and Chi-square tests were utilized to explore the association between the classification of diets (balanced versus imbalanced) and the qualitative description of academic performance. GWAs were grouped into qualitative categories as outlined in **Table 4**. Similarly, dietary intake assessments were based on serving sizes and diet classification criteria shown in **Tables 5** and **6**, respectively. All statistical analyses were then performed manually using Microsoft Excel, with validation checks applied to ensure data integrity and accuracy.

Results

This chapter elaborates on the analyzed and interpreted data, divided into four distinct sections. The first and second sections illustrated the quantitative evaluation of the profile and nutritional intake of the respondents, respectively. Consequently, the third and fourth sections present the correlation between academic performance and nutritional intake and academic performance and skipping meals respectively.

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Profile of the participants

The tabulated data shows the comprehensive demographic composition of the studied group. **Table 4** shows the profile of the respondents in terms of gender, age, height, and weight. In terms of gender distribution, most respondents, 84.4%, identify as female, with male respondents accounting for the remaining 15.6%. Further, a striking demographic pattern regarding age distribution is evident: most nursing students are between the ages of 20 and 21 years, making up a massive 97.4% of the population. On the other hand, 2.6% of the respondents, or a small minority, are younger than 20 and older than 21. Upon examination of anthropometric characteristics, it becomes apparent that a considerable percentage of participants are situated between 152.2 to 186.5 cm in height, accounting for 85.7% of the surveyed population in comparison to other height classifications. In terms of weight distribution, the majority of respondents (50.6%) weighed between 40 and 56 kg, followed by 33.8% weighing between 57 and 73 kg. A smaller proportion of respondents (10.4%) weighed between 74 and 90 kg, and only 5.2% were in the 91 to 109 kg range.

Table 5 reflects the skipping of meals. Data indicates a significant tendency for skipping breakfast, as 76% of the respondents reported disregarding this meal frequently. In comparison, lunch skipping is less common, accounting for 24.7% of the respondents, and dinner skipping is reported by 46.8%. Following this study, in terms of the times of skipping meals in a week, a significant majority of respondents' skip breakfast 3-5 times each week (54.6%); this while a minority avoid skipping breakfast entirely (26%). Concerning lunch, 75.3% of the respondents said they never skip this meal, while just 7.8% said they skip it at least once a week. Similarly, most responders (53.2%) follow their evening schedule without missing a meal, but 31.2% admit to skipping supper 1-3 times a week.

Table 4. Profile of the participants in terms of gender, age, height, and weight.

Variable	n	%
Gender		
Female	65	84.4
Male	12	15.6
Age (y)		
19	1	1.3
20	42	54.5
21	33	42.9
22	1	1.3
Height (cm)		
<152	10	13.0
152-182	66	85.7
182<	1	1.3
Weight (kg)		
40-56	39	50.6
57-73	26	33.8
74-90	8	10.4
91-109	4	5.2
Total	77	100.0

Table 5. Profile of the respondents in terms of skipping meals.

Times in a week	n	%
Breakfast		
0	20	26.0
1	2	2.6
2	5	6.5
3	16	20.8
4	15	19.5
5	11	14.3
6	1	1.3
7	7	9.1
Lunch		
0	58	75.3
1	6	7.8
2	5	6.5
3	6	7.8
4	2	2.6
Dinner		
0	41	53.2
1	10	13.0
2	10	13.0
3	4	5.2
4	10	13.0
5	2	2.6

Table 6 shows a significant proportion of the surveyed population (74%), as indicated by the computed GWA of the respondents who attained a

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level of academic achievement characterized as "very good." Likewise, a substantial 24.7% of the respondents displayed "good" academic achievement, while 1.3% of the total respondents, obtained "excellent" academic standing.

Relationship between academic performance (GWA) and nutritional intake

Table 8 examines the correlation between nutritional intake and GWA of nursing students using Pearson's correlation coefficient. The analysis shows no significant relationship between GWA and intake of carbohydrate (r=-0.10, *P*=0.36), protein (r=0.05, *P*=0.94), dairy products (r=0.05, *P*=0.66), vegetables (r=0.02, *P*=0.66), and fruits (r=-0.10, *P*=0.85). Chips, sweets, and water also show no significant correlation with GWA (r=-0.103, *P*=0.371; r=-0.117, *P*=0.312).

Table 6. General Weighted Average (GWA).

Grade	Qualitative description	n	%
96-100	Distinguished	0	0.0
90-95	Excellent	1	1.3
84-89	Very Good	57	74.0
81-83	Good	19	24.7
75-80	Passing	0	0.0
<74 and below	Failed	0	0.0

Nutritional intake of the respondents

Table 7 compares the average servings of food consumed by nursing students to the recommended daily servings: Carbohydrate consumption averages 1.21 servings (SD=0.44), totaling 7.25 servings, below the recommended 6-11 servings; protein intake averages 0.97 servings (SD=0.43), totaling 6.78 servings, below the recommended 2-3 servings; dairy products average 2.47 servings (SD=1.02), totaling 9.87 servings, meeting the 2-3 servings recommendation; vegetables average 2.60 servings, totaling 3.12 servings, below the recommended 3-5 servings; chips and sweets average 2.41 servings, totaling 12.06 servings, exceeding the recommended 1-2 times per week; and water consumption averages 7.10 glasses, below the recommended 8-10 glasses daily.

Table 7. Nutritional intake of the respondents in terms of quantity and quality.

Variable	Mean±SD	Recommended serving per day	Qualitative description
Carbohydrates	1.21±0.44	6-11	Imbalanced diet
Proteins	0.97±1.02	2-3	Imbalanced diet
Dairy products	2.47±74.0	2-3	Balanced diet
Vegetables	2.60±1.00	3-5	Imbalanced diet
Fruits	1.01±0.65	2-4	Imbalanced diet
Chips and sweets	2.41±1.37	1-2 times a week	Imbalanced diet
Water	7.10±2.40	8-10 glasses/day	Imbalanced diet

Table 8. Test for the relationship between the academic performance (GWA) and nutritional intake.

Variable	Academic performance
Carbohydrates Pearson's r	-0.10^{ns}
P-value	0.36
Qualitative description	Very low negative correlation
Protein Pearson's r	0.00^{ns}
P-value	0.94
Qualitative description	No correlation
Dairy products Pearson's r	0.05^{ns}
P-value	0.66
Qualitative description	Very low positive correlation
Vegetables Pearson's r	0.050^{ns}
P-value	0.66
Qualitative description	Very low positive correlation
Fruits Pearson's r	0.02^{ns}
P-value	0.85
Qualitative description	Very low positive correlation
Chips and sweets Pearson's r	-0.10^{ns}
P-value	0.37
Qualitative description	Very low negative correlation
Water Pearson's r	-0.11^{ns}
P-value	0.31
Qualitative description	Very low negative correlation

***Note**: Statistical analysis was conducted using Pearson's r-correlation. The p-values were obtained to assess the significance of the relationship between each nutrition category and academic performance (GWA). ns = not significant at P > 0.05; ^{ns}: not significant.*

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Relationship between the academic performance (GWA) and the time of skipping

Table 9 shows the correlation analysis examining the relationship between meal avoidance practices and academic performance among third-year nursing students. Using Pearson's r-correlation, the study assessed statistically significant relationships between the variables. The results indicate no significant relationship between the number of times students skipped breakfast (r=-0.07; *P*=0.50), lunch (r=-0.05; *P*=0.61), and dinner (r=-0.08; *P*=0.48) and their academic performance.

Discussion

This study examined the correlation between nutritional intake, meal skipping, and academic performance among third-year nursing students in a Philippine Catholic university. The findings provide insight into the dietary habits of nursing students and their potential implications for academic outcomes.

Nutritional intake and meal skipping trends

The results indicated that the majority of respondents exhibited an imbalanced dietary intake, characterized by insufficient consumption of essential food groups such as carbohydrates, proteins, vegetables, and water, while demonstrating excessive intake of dairy products, chips, and sweets. These findings are consistent with previous literature, suggesting that university students often struggle to maintain balanced diets due to time constraints, financial limitations, and lifestyle behaviors (Sogari *et al.*, 2018).

The present study also found that dairy products were the only food group where the recommended intake was consistently met among respondents. This indicates an adequate intake of protein, calcium, vitamin B, and vitamin D from dairy sources. However, water intake fell below the recommended levels, suggesting potential risks of dehydration, which can impair cognitive function and academic performance. Carbohydrates and proteins, essential for energy production and bodily maintenance, were consumed below the recommended daily servings. Such deficiencies may affect both physical health and academic outcomes. Moreover, an excessive consumption of chips and sweets was observed, indicating a dietary imbalance favoring unhealthy food options. These patterns align with the findings of Sogari *et al.*, who noted that students' food choices are significantly influenced by time constraints, convenience, and budget limitations (Sogari *et al.*, 2018). Convenience often outweighs considerations of nutritional value, price, taste, and pleasure in dietary decision-making (Ali *et al.*, 2015). These factors likely contributed to the observed imbalances in the nutritional intake of nursing students in the present study.

Table 9. Test for relationship between the academic performance (GWA) and the time of skipping meals.

Variable	Academic performance
Breakfast Pearson's r	-.07[ns]
P-value	.50
Qualitative description	Very low negative correlation
Breakfast and lunch Pearson's r	-.05[ns]
P-value	.61
Qualitative description	Very low negative correlation
Dinner Pearson's r	-.08[ns]
P-value	.48
Qualitative description	Very low negative correlation

[ns]: *not significant*

In terms of meal skipping, breakfast was the most commonly skipped meal, reported by 76% of respondents. This aligns with prior studies indicating breakfast as the meal most frequently skipped among young adults (Pendergast *et al.*, 2016). Supporting this, a cross-sectional study by Lee *et al*. conducted among South Korean students revealed that 29.2% of the participants reported skipping breakfast, with females more likely to skip breakfast than males (Lee *et al.*, 2021). Moreover, lifestyle factors such as excessive smartphone use were identified as contributors to breakfast skipping behaviors. These findings

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suggest that breakfast skipping is influenced by broader behavioral patterns, underscoring the need for school-based nutritional programs that address not only dietary practices but also associated lifestyle habits. Accordingly, the current study emphasizes the importance of promoting structured and healthier eating habits among nursing students to support their physical health and academic success.

Although lunch skipping was less prevalent (24.7%), and dinner skipping affected almost half (46.8%) of the respondents, the trend indicates that irregular eating patterns are common among nursing students. The post-lunch dip phenomenon, whereby cognitive functions decline after consuming high-carbohydrate or fatty meals, has also been noted in prior research (Chaturvedi *et al.*, 2021), highlighting the importance of not only meal frequency but also meal quality.

Nutritional intake and academic performance

Contrary to initial expectations, the correlation analysis of the present study revealed no significant relationship between students' overall nutritional intake and their academic performance. While several studies have suggested that balanced nutrition supports cognitive function and academic success (López-Gil *et al.*, 2022), the current findings suggest that other factors may have a more dominant influence on academic outcomes among nursing students.

This divergence may be explained by evidence from studies, which found no direct and significant relationship between dietary intake and academic performance after adjusting for confounders like socioeconomic status and study habits (Asmare *et al.*, 2018, Ibrahim *et al.*, 2020). It is possible that students develop coping mechanisms, such as efficient study strategies and time management, which may buffer the potential negative effects of poor dietary habits on academic outcomes.

While diet is crucial for overall health, its direct impact on academic success might be limited or overshadowed by other factors such as study habits, stress, and sleep quality. Asmare *et al.* Asmare *et al.* (2018) found that effective study techniques are strong predictors of academic performance (Asmare *et al.*, 2018). Socioeconomic status also affects academic outcomes, with low income linked to poor performance, partly due to inadequate nutrition. Other influences on academic performance include body composition, lifestyle choices, exercise habits, and access to sports facilities (Lin and Liu, 2022).

Nonetheless, some studies emphasize that poor eating habits themselves can significantly impair academic success. Kapoor *et al.* suggest that poor eating habits can significantly affect academic success (Kapoor *et al.*, 2023). Unhealthy food choices, such as reliance on fast food and snacks, negatively impact nutrition and academic performance (Gande *et al.*, 2023). Studies also show a correlation between BMI and Grade Point Average (GPA), emphasizing the role of proper nutrition in promoting academic achievement (Ibrahim *et al.*, 2020). Thus, nutritional intake plays a crucial role in influencing students' academic outcomes, even if its effects interact with broader lifestyle and socioeconomic factors.

Meal skipping and academic performance

The analysis found no significant relationship between meal-skipping frequency and academic achievement. These results contrast with prior studies that linked frequent meal skipping, particularly breakfast omission, to cognitive impairment and reduced academic performance (Sofar *et al.*, 2019). One possible explanation is that the nursing students in this study may have developed adaptive coping mechanisms, such as strategic meal planning or reliance on nutrient-dense snacks, to mitigate the effects of meal skipping. Furthermore, their academic performance, classified as "Good" on average, suggests that students may be prioritizing their studies over their dietary habits without experiencing immediate negative effects on their grades.

Implications for nursing education and practice

Given that nursing students serve as future healthcare professionals, their dietary habits and

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nutritional knowledge have implications beyond personal health; they also influence their ability to educate and guide patients on proper nutrition. The findings highlight the need to enhance the integration of applied nutrition education within the nursing curriculum. Strengthening the Nutrition and Diet Therapy program, incorporating interactive workshops, and fostering collaborations with registered nutritionists could help bridge the gap between theoretical knowledge and real-life dietary practices.

While this study provides valuable insights, several limitations must be acknowledged. First, the reliance on self-reported dietary intake data may introduce recall bias. Future studies should consider employing more precise dietary assessment methods, such as 24-hour food recalls or food diaries, to improve data accuracy. Additionally, conducting experimental or longitudinal research could provide a deeper understanding of the causal relationship between nutrition and academic performance. Investigating other factors such as socioeconomic status, sleep patterns, and mental well-being may further clarify the complex interactions affecting student achievement. This study contributes to the growing body of literature on student nutrition and academic performance. While no significant correlations were found between dietary intake, meal skipping, and academic achievement, the findings highlight the prevalence of imbalanced dietary habits among nursing students. Future research and institutional efforts should focus on promoting healthier eating behaviors, ensuring that students not only succeed academically but also cultivate lifelong habits that support overall well-being and professional competency in the healthcare field.

Conclusions

In this study, the researchers investigated the correlation between nursing students' academic performance and their nutritional intake and meal skipping. Based on the results and discussions, the following conclusions were made. The majority of the responders were female, between the ages of 20 and 21, with a height of 152 to 186 cm and a weight of 40 to 56 kg. Most respondents skipped breakfast, and they were rated as "Good" qualitatively. The findings show that the respondents' nutritional intake is unbalanced since they consume less servings of water, vegetables, proteins, and carbohydrates than advised. On the other hand, more chips, dairy products, and sweets have been consumed than advised. The GWA of the respondents was interpreted as "Good" despite an imbalanced nutritional intake. Finally, there is no substantial association between respondents' academic performance and the time they skip meals.

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Authors' contributions

Salviejo DH, Baler KJ, Bunagan CG, Calpito MJ, and Javier PP designed the research; Salviejo DH, Baler KJ, Bunagan CG, Calpito MJ, and Javier PP conducted it; Salviejo DH, Baler KJ, Bunagan CG, Calpito MJ, Javier PP, and Baliton J wrote the manuscript; and Baliton J had primary responsibility for final content. All authors read and approved the final manuscript.

Conflict of Interests

The authors declared no conflicts of interest.

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