ORIGINAL ARTICLE

Association Between Field of Study, General Nutrition Knowledge, and Healthy Eating Practice Among IIUM Students

Alea Ameera Akmal binti Kama[1], Noraishah binti Mohammed Nor[1,2*] , Muhammad Ibrahim Muhammad[1,2] & Muhammad Ashraf Rostam[1,2]

[1]Department of Nutrition Sciences, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Pahang, Malaysia
[2]Food Security and Public Health Nutrition Research Group (FOSTER), Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Pahang, Malaysia

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ABSTRACT

Background: Adequate nutrition knowledge and healthy eating practices are essential for promoting overall health, particularly among university students who often encounter lifestyle changes and academic pressure that may compromise their dietary habits. The field of study has an impact on students' nutritional knowledge and eating practices, as the nutrition-related courses are often linked to increased awareness regarding healthy eating. Therefore, this study aimed to investigate the association between the field of study, general nutrition knowledge, and healthy eating practices among students at the International Islamic University Malaysia (IIUM). **Methods:** A cross-sectional study was conducted among 379 undergraduate students from IIUM, recruited using convenience sampling. Data were collected through a self-administered questionnaire consisting of the Malay version of the General Nutrition Knowledge Questionnaire (GNKQ) and the Starting the Conversation: Diet (STC) tool. Statistical analyses, including One-way ANOVA and Kruskal-Wallis H tests, were performed using SPSS Version 29.0. **Results:** Most participants (64.9%, n = 246) demonstrated good nutrition knowledge, particularly students from dietetics, while only 0.5% (n = 2) exhibited poor knowledge. The average eating practice score indicated a moderately unhealthy dietary pattern, with a mean score of 6.75 out of 14. Interestingly, students from non-health courses reported healthier eating behaviours compared to those from health-related fields. Significant associations were observed between the field of study and general nutrition knowledge ($p < 0.001$) and between the field of study and healthy eating practices ($p = 0.016$). **Conclusion:** The findings suggest that the nutritional knowledge among IIUM students is generally good. Students in the dietetics field reported the healthiest eating practices compared to students in other fields of study. These results highlight the need for interventions that not only provide nutrition education but also promote overall behaviour change strategies.

INTRODUCTION

Nutrition knowledge refers to the understanding of dietary guidelines and nutrient sources (Bhawra et al., 2023). It enables individuals to make informed food choices and build a solid foundation for practising healthy eating, while a lack of knowledge may lead to undernutrition or overnutrition, contributing to an abnormal body mass index (BMI) and increased risk of chronic diseases. Moschonis & Trakman, 2023). Previous studies have shown that higher nutrition knowledge is associated with healthier practices (Ong et al., 2021; Serban et al., 2024).

However, studies have shown that nutrition knowledge and eating practices vary significantly depending on one's educational background, particularly the field of study. For instance, students in health-related disciplines often demonstrate stronger abilities in evaluating health information, which is associated with healthier eating habits (Habiba & Koli, 2024; Yandutkina et al., 2024)

Young adults commonly obtain nutrition information from online platforms, traditional media like television and radio, health professionals, family, and peers (Jusoh et al., 2021; Pavlović et al., 2023; Quaidoo et al., 2018). However, information from these sources is not always accurate, making health professionals the most reliable source of information. Despite wide access to nutrition information, many university students still demonstrate poor levels of nutrition knowledge (Tay et al., 2023).

Healthy eating practices involve the adequate intake of

[1*] *Corresponding author.*
E-mail address: ishah@iium.edu.com

both macronutrients and micronutrients to support bodily functions (Cena & Calder, 2020). However, many students report poor dietary behaviours, such as frequent consumption of processed food and sugary drinks. These behaviours are influenced by convenience, affordability, peer influence and academic stress.

The field of study also plays a role in shaping eating practices. Students in health-related disciplines tend to have higher health literacy and better nutrition awareness due to greater exposure to health science (Sukys et al., 2017). However, evidence on whether this advantage translates into healthier eating practices remains inconsistent.

Therefore, this study aims to investigate the association between field of study, general nutrition knowledge, and eating practices among IIUM students. The results can serve as guidance in strengthening campus-based health initiatives, such as developing targeted awareness campaigns to promote healthier food choices for all students.

MATERIALS AND METHODS

Study Design

This research employed a cross-sectional quantitative study design to investigate the impact of different fields of study on general nutrition knowledge and healthy eating practices among university students. Participants were recruited through convenience sampling, a practical method that utilises both online platforms and physical questionnaire distribution to recruit participants.

Study Population

The study population consists of students aged 18 to 26 years old currently enrolled in the IIUM Gombak Campus, Kuantan Campus, and Pagoh Campus. The inclusion criteria include undergraduate IIUM students aged between 18 and 26 years old.

Data Collection

Validated questionnaires were used to collect relevant information from participants. The questionnaire consists of four parts, which were made available in both online and paper formats.

Part 1 contains the sociodemographic data, including age, gender, campus, Kulliyyah, field of study, access to nutrition education and medical issues. Part 2 is the anthropometric data section, including participants' body weight (in kilograms) and height.

Part 3 of the questionnaire covers the revised Malaysian version of the General Nutrition Knowledge Questionnaire, which was modified and validated by Manan et al. (2023) to assess participants' level of nutrition knowledge. This Malaysian version of GNKQ was adopted from Kliemann et al (2016), who revised the original GNK. It consists of four sections, each evaluating different areas of nutrition knowledge. The first section focuses on knowledge of dietary advice from experts, while the second section tests the ability to classify foods based on their nutrient content. The third evaluates selection skills, requiring participants to choose healthier options, and the fourth examines knowledge of the relationship between diet and health. This questionnaire categorises general nutrition knowledge into four levels based on scoring: poor knowledge (0-23), average knowledge (24-46), good knowledge (47-69), and excellent knowledge (70-93).

Part 4 of the survey contains Starting The Conversation (STC): Diet questionnaire. It is a validated eight-item simplified food frequency instrument that assesses eating practices among individuals, covering both the healthy and unhealthy food choices of the general population. This questionnaire employs a scoring system that categorises responses into three columns based on healthfulness, with lower scores indicating the healthiest dietary practices (Mahoney et al., 2024; Paxton et al., 2011).

Statistical Analysis

The data collected was analysed using SPSS version 29.0. The sociodemographic and anthropometry data obtained were analysed using descriptive statistics. One-way ANOVA was used to determine the association between different fields of study and general nutrition knowledge. The Kruskal-Wallis H test was used to identify the association between different fields of study and healthy eating practices.

RESULTS

Characteristics of Participants

A total of 379 IIUM undergraduate students participated in this study (Table 1). The mean age was 21.31±1.35 years, with most respondents falling between the ages of 21 and 23 years (58.0%, n=220), followed by those aged 18-20 years (35.9%, n=136) and 24-26 years (6.1%, n=23). The sample was predominantly female (88.7%, n = 336), while males represented 11.3% (n = 43).

Participants were recruited from three IIUM campuses, including Kuantan (67.5%, n = 256), Gombak (21.1%, n =

80), and Pagoh (11.3%, n = 43). The majority were from the Kulliyyah of Allied Health Sciences (KAHS), followed by the Kulliyyah of Sustainable Tourism and Contemporary Languages (KSTCL) and the Kulliyyah of Pharmacy. By field of study, 44.6% (n=169) of students were enrolled in health-related programmes, while 19.0% (n=72) were dietetics students and 36.4% (n=138) in non-health fields. Furthermore, 78.9% (n = 299) reported having access to nutrition education, while 21.1% (n = 80) did not.

Lastly, regarding the distribution of BMI, nearly half (45.6%, n = 173) of the respondents had a normal BMI. This was followed by students who were underweight at 22.4% (n = 85), overweight at 21.6% (n = 82), and obese at 10.3% (n = 39). These findings show that, while the majority of the students had normal BMI, a significant proportion (31.9%) fell within the overweight and obese categories, which may raise concerns regarding potential health risks. BMI values among respondents ranged from 12.5 kg/m² to 41.9 kg/m², with a mean BMI of 21.93 ± 4.42, which falls within the normal range according to the CPG, Management of Obesity BMI classifications.

Table 1: Demographic Data of Participants

Sociodemographic Characteristics	Categories	Frequency (n)	Percentage	Mean ± SD
Age	18-20	136	35.9	21.31±1.35
	21-23	220	58.0	
	24-26	23	6.1	
	Total	379	100	
Gender	Male	43	11.3	
	Female	336	88.7	
	Total	376	100	
Campus	Gombak	80	21.1	
	Kuantan	256	67.5	
	Pagoh	43	11.3	
	Total	379	100	
Kulliyyah	KICT	9	2.4	
	KAHS	134	35.4	
	KAED	5	1.3	
	KOD	22	5.8	
	KENMS	10	2.6	
	KOED	8	2.1	
	KOE	8	2.1	
	KIRKHS	35	9.2	
	AIKOL	5	1.3	
	KOM	31	8.2	
	KON	7	1.8	
	KOP	39	10.3	
	KOS	23	6.1	
	KSTCL	43	11.3	
	Total	379	100	
Field of Study	Health	169	44.6	
	Health (Dietetics)	72	19.0	
	Non-health	138	36.4	
	Total	379	100	
Access to Nutrition Education	Yes	299	78.9	
	No	80	21.1	
	Total	379	100	
BMI	Obese	39	10.3	21.93±4.42
	Overweight	82	21.6	
	Normal	173	45.6	
	Underweight	85	22.4	
	Total	379	100	

General Nutrition Knowledge of IIUM Students

The general nutrition knowledge levels among the respondents were categorised into four levels: poor, average, good, and excellent. Based on Table 2, most IIUM students (64.9%, n = 246) demonstrated a good level of general nutrition knowledge. Additionally, 26.6% (n = 101) of the respondents demonstrated an excellent level of knowledge, while 7.9% (n = 30) showed an average level. Only a small fraction of students (0.5%, n = 2) fell into the category of poor general nutrition knowledge. The minimum score obtained was 14 marks, and the highest score was 84, with a mean score of 61.97 ± 11.33.

Table 2: General Nutrition Knowledge Level of Participants

General Nutrition Knowledge Level	Frequency (n)	Percentage (%)	Mean ± SD
Poor	2	0.5	61.97±11.33
Average	30	7.9	
Good	246	64.9	
Excellent	101	26.6	
Total	379	100	

Eating Practices of IIUM Students

Healthy eating practices were analyse using the Starting the Conversation (STC): Diet Questionnaire. The results ranged from a minimum of 0.00 to a maximum of 14.00 scores, with a mean score of 6.75 ± 1.96 among 379 respondents. Since the scoring system of the STC Questionnaire indicates that lower scores reflect healthier eating practices, the mean scores suggest that, on average, IIUM students exhibited moderately unhealthy eating practices.

Association between Field of Study and General Nutrition Knowledge among IIUM Students

Table 3 shows a statistically significant difference in General Nutrition Knowledge scores between the three groups, $p < 0.001$. Students from the Dietetics group had the highest mean rank (303.11), followed by students in other health programs (185.30) and non-health students (136.74). The outcome indicates that the field of study is significantly associated with levels of general nutrition knowledge.

Table 3: Association between General Nutrition Knowledge Scores and Field of Study

	N	Mean Rank	df	p-value
Health	169	185.30		
Health (Dietetics)	72	303.11	2	<0.001
Non-health	138	136.74		

Association between Field of Study and Eating Practice Among IIUM Students

Table 4 indicates that dietetics students had the lowest mean score (6.22 ± 1.87), followed by students from the non-health group (6.70 ± 1.97) and health (non-dietetics) students (7.01 ± 1.94), with a p-value of 0.016 ($p < 0.05$) and the F value (2,376) = 4.18. Therefore, the analysis revealed a statistically significant difference in eating practice scores between health, dietetics and non-health students.

Post hoc analyses using the Bonferroni method (Table 5) revealed that the mean difference between the Health (Dietetics) and Health (non-dietetics) groups was statistically significant ($p = 0.013$), with Dietetics students exhibiting significantly healthier eating practices. However, no significant differences were found between Dietetics and Non-health students ($p = 0.267$), or between Health and Non-health students ($p = 0.522$).

These findings suggest that the field of study, particularly specialised education in nutrition and dietetics, may be associated with healthier eating behaviours among young adults.

Table 4: Comparing Eating Practices between Health, Health (Dietetics), and Non-health (n=380)

Variable	N	Healthy Eating Practices		F-statistics (df)	p-value
Field of Study		Mean	SD		
Health	169	7.0059	1.94415		
Health (Dietetics)	72	6.2222	1.87062	4.178 (2, 376)	0.016
Non-health	138	6.7029	1.96840		

Table 5: Post Hoc Test between Field of Study and Eating Practices of Participants

Pair	Mean Differences (I-J)	Std. Error	Sig	95% Confidence Interval	
				Lower Bound	Upper Bound
Health, Health (Dietetics)	.78369	.27294	.013	.1273	1.4400
Health, Non-health	.30302	.22251	.522	-.2321	.8381
Health (Dietetics), Health	-.78369	.27294	.013	-1.4400	-.1273
Health (Dietetics), Non-health	-.48068	.28195	0.267	-1.1587	.1973
Non-health, Health	-.30302	.22251	0.522	-.8381	.2321
Non-health, Health (Dietetics)	.48068	.28195	0.267	-.1973	1.1587

DISCUSSION

The result obtained revealed that more than half of the participants demonstrated a good level of knowledge, suggesting that IIUM students are well-informed about key nutrition concepts, including dietary recommendations, nutrient content in food, food choices, and the relationship between diet and health.

These findings are consistent with a previous study by Yusni et al. (2023), which showed that 95.3% of participants among University Sains Malaysia (USM) students have good nutrition knowledge. In contrast, other studies have reported a much higher prevalence of poor nutrition knowledge among university students. For instance, in Kuwait, 84.1% of students had poor nutrition knowledge (Husain et al., 2021). In contrast, a UK-based study found that fewer than half of the students demonstrated an adequate understanding of nutrition (Belogianni et al., 2022).

A large proportion of participants in this study were from health-related programmes, including dietetics. Students from these fields often exhibit a higher level of nutrition knowledge due to the integration of nutrition education into their core academic syllabus. Typically, students learn about nutrition and diseases, as well as the concepts of macronutrients and micronutrients.

Moreover, the results suggested that IIUM students generally engage in moderately unhealthy dietary practices. The results are similar to those found by Ali & Jaafar (2020), who also discovered that IIUM students engaged in unhealthy dietary behaviours. This includes having fewer than three meals per day, skipping breakfast, and snacking between meals.

One of the factors that likely contributes to these dietary practices is tight academic schedules. University life often demands that students multitask between classes, assignments, examinations, and extracurricular activities, leading them to skip meals or choose meals that are easy and quick to prepare(Deliens et al., 2014). Ready-to-eat foods are often processed and have lower nutritional value.

These findings reflect a broader trend seen across university populations, where students tend to neglect and deprioritise their nutritional needs, due to challenges associated with young adulthood (Das & Evans, 2014).

The field of study has a significant impact on nutrition knowledge, with dietetics students achieving the highest scores, followed by students in other health-related fields and non-health students.

This underscores the importance of academic exposure in shaping students' knowledge. Dietetics programmes provide comprehensive nutrition education, equipping students with both theoretical and practical skills to apply evidence-based nutrition knowledge in both academic and real-world settings.

In contrast, non-health students often lack formal nutrition education, relying instead on informal sources such as social media, peers and family (Geist et al., 2024). Without access to reliable, evidence-based guidance, non-health students are more susceptible to misconceptions and fad diets, which may lead to poor dietary habits and nutrient deficiencies.

These results align with previous studies that emphasise the impact of educational background on health-related literacy. A study by Egg et al. (2020) found that increased engagement in nutrition education leads to improved nutrition knowledge and literacy, which in turn enhances eating habits.

Additionally, the dietetics students also had significantly healthier eating practices compared to students in other health-related and non-health-related fields, as reflected by their lowest mean scores in the STC questionnaires. Interestingly, the non-health students reported healthier eating practices compared to other health-related students.

The finding aligns with studies by Jahan et al. (2023) and Bayomy et al. (2024), which suggested that health and medical students often exhibit less balanced diets compared to non-health students. While exposure to health-related information might be expected to encourage healthier practices, academic stress and workload may counteract these benefits.

A study by Omar et al. (2024) reported that 35.2% of medical students in Malaysia experienced stress. Similarly, research conducted in Karachi, Pakistan, found that 75.6% of medical students attributed their high stress levels to academic demands, which is more than double the rate of students from other academic fields (Aamir, 2017). Stress arising from academic challenges, such as examination pressure and heavy workload (Othman et al., 2013), can disrupt eating behaviours, leading to emotional eating, appetite loss, or irregular meal patterns.

Poor time management further contributes to poor eating habits. Health-based students' strong dedication to studies and clinical rotations often leads them to deprioritise meal planning (Bayomy et al., 2024).

Overall, these findings highlight that nutrition knowledge is not the sole determinant of healthy eating. Psychological health, time management, financial circumstances, and environmental influences all interact to shape students' dietary behaviours. Therefore, a multidimensional approach is crucial to promoting healthier eating habits among university students.

CONCLUSION

Most students demonstrated good to excellent levels of nutrition knowledge, with the highest scores observed among those in the dietetics program. Similarly, dietetics students exhibited the healthiest eating practices compared to those in non-health-related and health-related fields.

These findings suggest that specialised nutrition education is linked to both higher knowledge and healthier eating practices.

Thus, this study highlights the importance of expanding and enhancing nutrition education beyond knowledge sharing by integrating behavioural and environmental factors in the interventions.

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