



NUTRITIONAL KNOWLEDGE AND DIETARY INTAKE AMONG STUDENTS IN UNIVERSITY OF CYBERJAYA

¹Siti Fatimah Az-Zahrah Binti Amir, ¹Devina Dharsshene, ¹Amna Mohsen Salah AbdelMohsen, ¹Ang Yeong Siang, ²Umaparan A/L Govindan

¹MBBS Student, Faculty of Medicine, University of Cyberjaya, Malaysia

²Lecturer, Surgery, University of Cyberjaya, 63000, Selangor, Malaysia

Corresponding Author

Dr Umaparan A/L Govindan

Lecturer, Department of Surgery, University of Cyberjaya, 63000, Selangor, Malaysia

Email: umaparan@cyberjaya.edu.my

ABSTRACT

Background: Dietary habits are the food choices preferred by persons in their daily life. They differ from person to person. A healthy dietary habit helps an individual to stay fit and well throughout life. Nutrition and diet are crucial for preserving health and preventing diseases. Our aim is to assess the nutritional knowledge and their dietary intake among the students in the University of Cyberjaya. **Methods:** A cross sectional study conducted at the University of Cyberjaya, Selangor with a sample size of 174 students from the Faculty of Medicine and Faculty of Pharmacy participating in this study. An online google form questionnaire consisting of 3 sections that focus on different interests of the study topic was distributed to participants where Section A was on demographic data of participants, section B consists of four independent sections to assess the nutrition knowledge of the students, and section C consists of 31 questions to assess undergraduate students' dietary intake. **Results:** Majority of the students from the Faculty of Medicine and Faculty of Pharmacy have high nutritional knowledge levels (70.8%) with good dietary intake status (76.4%). Therefore, students with high nutritional knowledge are four times more likely to have a good dietary intake. **Conclusion:** There is a significant association between students' nutritional knowledge and their dietary intake. Hence, our study has proven that for those with high nutritional knowledge, good dietary intake is practiced.

KEY WORDS: Nutritional knowledge, Dietary intake, Healthy eating, Food choices, Medical students, Pharmacy students

INTRODUCTION

Nutrition education programmes are intended to improve nutrition knowledge with the goal of promoting healthy dietary intake in the community or a specific target demographic. Schools, the government, and health promotion organisations all provide a variety of messages that include a nutrition component. In most developed countries, community members are exposed to education on dietary recommendations or basic food group intake. Specific education is also widely available to prevent or manage lifestyle disorders such as diabetes, CVD, or cancer. (Spronk et al., 2014)^[1a]

Dietary intake is influenced by a variety of factors, including flavour, convenience, food cost or security, and cultural or religious beliefs. Age, sex, education level, and socioeconomic background are all shown to have an impact on nutrition awareness. Women are generally more knowledgeable about nutrition than men are, and this discrepancy has been linked to either women's more dominant role in food preparation and purchase or men's perceived lack of interest in nutrition. Higher levels of education or socioeconomic position have been linked to greater dietary awareness. Additionally, these demographic variables affect nutritional intake. As new research shows a substantial correlation between low health literacy, poor chronic illness management, and higher health costs, it is crucial to better understand the relationship between nutrition education and dietary intake. (Spronk et al., 2014)^[1b]

Nutrition and diet are crucial for preserving health and mitigating the spread of diseases. Morbidity and mortality associated with non-communicable diseases may be decreased if

healthy eating habits are established earlier in life and sustained over time. (Bertsias et al., 2005, Gliksman et al., 1993)^[2]. Adolescents begin to take control of their own patterns of food consumption, health behaviours, and actions. (Fleming-Moran & Thiagarajah, 2005)^[3]. In fact, behaviours play a vital role in adopting and maintaining several healthy habits with regard to nutrition. Albeit adolescents' growing self-reliance is often linked with uncommon eating patterns (Veugelers et al., 2005; Kubik et al., 2005)^[4] and dietary attitude during adolescence, might be temporary in certain individuals, health-related attitudes portray tracking through adolescence (Kelder et al., 1994)^[5]. and there is clear proof of their early formation. Information about healthy food picks and food safety can be promoting factors for modifying eating behaviours and practicing a healthy diet (Prell et 2005)^[6], but it is not enough to encourage healthy eating (Niciforovic-Surkovic et al., 2002)^[7]. The factors that influence eating behaviours must be better comprehended to initiate efficient nutrition strategies targeted to people in order to improve their healthy eating behaviours (Story et al., 2002)^[8]. Thus, determinants such as habits, attitudes, self-efficacy, barriers to change and the meaning of "healthy" and "unhealthy" diet and food must be considered.

The aim of this study is to analyze the students' nutritional knowledge and their dietary intake during their undergraduate study because diet and nutrition are crucial for preserving health and preventing diseases. It is not surprising to see that there is a high knowledge of dietary habits among medical students. This can be clearly seen in research done among medical students at King Abdulaziz University where 75%-94% of the students were aware of the composition of a balanced diet, identification of the healthiest frying method, identification of the healthiest eating behavior, importance of vitamins and minerals consumption and the meaning of organic food.

MATERIALS AND METHODS

A quantitative cross-sectional study was conducted from August 2021 until April 2022 among the students of University of Cyberjaya. The students who participated in this research were all undergraduates, aged 18 years above and from the Faculty of Medicine and Faculty of Pharmacy. Students who are pregnant and students with a special diet due to food allergies were excluded from the study. Participants who refused to participate or did not give consent and participants who were unable to access the questionnaire were classified as non-response criteria.

A total of 795 students from the Faculty of Medicine and Faculty of Pharmacy with a target sample size of 174 in which the z score and margin of error used were 1.96 and 7% respectively were the estimated proportion. The sample size was achieved after adding the consideration of 10% of non-respondents.

Data collection was done via the batch email of the respective faculties where the google form link was sent. This google form includes a set of questionnaires (online survey) that considers all the inclusion, exclusion, and non-response criterias'. They are required to tick the box which would correspond to their answer. The response numbers will be limited to the number of students allocated for each batch. The questionnaires were in English and comprised of 3 sections which were on sociodemographic characteristics, nutritional knowledge, and dietary intake. This is a validated questionnaire from Kliemann N., et al., 2016^[9] and Kurka, et. al, 2014^[10]. Section A records the sociodemographic data of the participants which consist of gender, age, ethnicity, faculty, years of study, marital status, and allowance per month. Section B assesses the nutrition knowledge of the students. It consists of four independent sections, each assessing a different aspect of nutrition knowledge which are Dietary recommendations, Food groups, Healthy Food

choices and Diet, Disease and Weight management. The scoring is based on participants with a score of more than 50% in 3 or more sections having high nutrition knowledge and a score of more than 50% in 2 or fewer sections is considered as low nutrition knowledge. This assessment acts as a tool to analyze nutrition knowledge, broadly defined, refers to knowledge of concepts and processes related to nutrition and health including knowledge of diet and health, diet and disease, foods representing major sources of nutrients, and dietary guidelines and recommendations (Axelson, Brinberg, 1992^[11], McKinnon et al, 2014^[12], Moorman, 1996^[13], Parmenter & Wardle, 1999^[14]). Section C is to assess the students' dietary intake. It consists of 31 questions and participants are required to tick which best describes their dietary habits with responses such as Usually/ Often, Sometimes Rarely/ Never and Does not apply to me. Participants with scores of less than 5 questions answered as Usually/Often have Good dietary intake and scores greater than or equal to in 5 questions answered as Usually/Often have Poor dietary intake. The data analysis for our research was done using JASP version 14.1. Odd Ratio and Chi-square are used to analyze the relationship between the students' nutritional knowledge and their dietary intake.

ETHICAL CONSIDERATION

This study was approved by the Research Ethics Committee, Faculty of Medicine University of Cyberjaya No.UOC/CRERC/ER/313.

RESULTS

A total of 178 participants responded to this study. A total of 178 participants have agreed and responded to this research. majority of the respondents are female (63.5%), of the age group of 22 – 25 (61.8%), Malay (55.1%) and from the Faculty of Medicine (67.4%).

Sociodemographic data of respondents in this study

Table 1 is the sociodemographic data of our total participants. The majority of the respondents are female (63.5%), of the age group of 22 – 25 (61.8%), Malay (55.1%) and from the Faculty of Medicine (67.4%).

Students' nutritional knowledge level

Table 2 shows the majority of the students from the Faculty of Medicine and Pharmacy have a high nutritional knowledge level (70.8%).

Students' dietary intake status

The majority of the students have good dietary intake status (76.4%) based on Table 3.

Relationship between students' nutritional knowledge and their dietary intake

Table 4 shows those who have high nutritional knowledge have a higher prevalence (53.4%) of good dietary intake. It also indicates that those with high nutritional knowledge are four times more likely to have a good dietary intake (OR:- 0.20) and there is a significant association between students' nutritional knowledge and their dietary intake (95% CI: -0.98 – 0.58).

DISCUSSION

The aim of this research is to analyze the students' nutritional knowledge and their dietary intake during their undergraduate study. This was accomplished by (i) measuring students' nutritional knowledge level, (ii) dietary intake status and the relationship between students' nutritional knowledge and their dietary intake status. Based on our results, 71% of students have a high level of nutritional knowledge compared to a cross-sectional study conducted among the population in Valencia, Spain (Carrillo. et al, 2012) which is 27%. This is due to the improvement seen among the public regarding the importance of nutritional knowledge as our study was conducted recently and the study by Carrillo. et al, was done in 2012.

According to our findings, 75% of the students have good dietary intake. These findings were not consistent with the study done by Hassan M. R., et al. (2015) which showed only 22.0% (66 students) with good practicing scores. This good dietary intake could be attributed to the educational level of our respondents. This is primarily due to their strong background knowledge in health sciences. They are able to diversify their diet by increasing their food choices as their educational level increases.

As reported in our research, it shows those who have high nutritional knowledge have a higher prevalence (53.4%) of good dietary intake. It also indicates that those with high nutritional knowledge are four times more likely to have a good dietary intake and there is a significant association between students' nutritional knowledge and their dietary intake. This comes in line with the result from the research by Wardle et al. (2000) with 1040 adult participants where knowledge was significantly associated with healthy eating, and the effect persisted after controlling for demographic variables.

Research from Worsley (2002) suggests that nutrition knowledge shows the utility is likely to be related to consumers' and nutritionists' particular goals and viewpoints and suggests that nutrition knowledge may play a small but pivotal role in the adoption of healthier food habits.

LIMITATION

Firstly, the foremost limitation of our study is that it is only conducted among undergraduate students from the Faculty of Medicine and Faculty of Pharmacy. It should also involve other health science faculties since nutritional knowledge and dietary intake is a basic knowledge of science. Furthermore, due to this, our findings also may not be generalizable to populations from different demographic backgrounds. The length of the questionnaire that is used in our study is long therefore it was time-consuming for the respondents. This made it difficult and took a long time to get responses from the participants.

CONCLUSION

This study highlights that those who have high nutritional knowledge have good dietary intake among students. This shows that with high knowledge comes good practice in daily habits of dietary intake. The importance of having a good dietary intake should be instilled in society as it is the main risk factor that could lead to a lot of health issues in society. With a good and healthy diet, people could live a healthy lifestyle without worrying about the risk of getting some diseases. Each person's diet varies from one another however, the basic needs of each diet are relatively similar. Therefore, it is important to nurture a good and healthy balanced diet from young. This is due to some people developing certain diets from their habits. It is high time society understands its importance and implement it in their daily habits. Thus, this research has proven that for those

with high nutritional knowledge, good practice of dietary intake is practiced. This leads to an improvement in the overall physical health of the community.

RECOMMENDATIONS

In this era that we live in, life is highly evolving, and new facts and dietary guidelines for various food are always being published, therefore it is important to keep ourselves updated with this knowledge to adopt a good dietary intake in our lives. Hence, we strongly recommended future researchers can conduct this type of study among a generalized population with concise online surveys. Public awareness programs are recommended to be held frequently to increase awareness of the importance of good dietary intake in society.



Table 1: Sociodemographic data of respondents in this study.

Sociodemographic		Frequency	Percentage
Gender	Male	65	36.5
	Female	113	63.5
Age Group	18 – 21	56	31.5
	22 – 25	110	61.8
	26 – 29	12	6.7
Ethnicity	Malay	98	55.1
	Chinese	32	18.0
	Indian	38	21.3
	Others	10	5.6
Faculty	Medicine	120	67.4
	Pharmacy	58	32.6
Year of study	Year 1	19	10.7
	Year 2	40	22.5
	Year 3	55	30.8
	Year 4	40	22.5
	Year 5	24	13.5
Marital status	Single	177	99.4
	Married	1	0.6

Table 2: Students' nutritional knowledge level

Nutritional Knowledge level	Frequency (n)	Percentage (%)
High	126	70.8
Low	52	29.2
Total	178	100

Table 3: Students' dietary intake status

Dietary intake status	Frequency (n)	Percentage (%)
Good	136	76.4
Poor	42	23.6
Total	178	100

Table 4: Relationship between students' nutritional knowledge and their dietary intake

		Dietary Intake		TOTAL n (%)	OR (95% CI)	p-value
		Good	Poor			
Nutritional Knowledge	High	95 (53.4%)	41 (23.0%)	136 (76.4%)	-0.20 (-0.98, 0.58)	0.622
	Low	31 (17.4%)	11 (6.2%)	42 (23.6%)		

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