Nutrition Knowledge, Attitude, and Health Practices Among Public School Teachers in the Philippines

[1]Rica Joy M. Ortega and [2]Ruth A. Ortega-Dela Cruz*

[1]Los Baños, Laguna, Philippines
[2]University of the Philippines Los Baños, Philippines

https://doi.org/10.56893/ajhes2025v04i01.01

Abstract

Background: Public school teachers play a critical role in the success of education systems, particularly in developing countries. Despite their importance, the health and well-being of these educators are often neglected. This study sought to evaluate elementary school teachers' nutrition knowledge, attitudes, and health practices in a developing country.

Methods: A survey research design was employed to gather data from elementary school teachers. The survey assessed their nutrition knowledge, attitudes toward nutrition, and related health practices.

Results: The findings indicated a high level of agreement among the participants regarding their nutrition knowledge, attitudes, and health practices. Correlation analysis revealed statistically significant relationships among these three variables. Furthermore, socioeconomic characteristics were significantly associated with teachers' nutrition knowledge, attitudes, and health behaviors.

Conclusion: Enhancing nutrition knowledge, attitudes, and health practices of public-school teachers is vital for improving their overall well-being and, by extension, the quality of education. Continued research and sustained intervention are necessary to promote a holistic approach to teacher health, contributing to the broader advancement of education in developing countries.

Keywords: Attitude, health practices, knowledge, nutrition, public school teachers

Introduction

In recent decades, lifestyle changes have significantly altered the daily lives of people worldwide. These shifts have affected diet, food choices, cooking methods, and more. A key trend is the growing preference for manufactured food over organic options. Additionally, there has been a rapid rise in the number of restaurants and the popularity of fast food. One of the most essential aspects of a healthy life is proper nutrition. Epidemiological studies have indicated that changes in lifestyle and eating habits contribute to the increasing prevalence of diseases such as cancer, hypertension,

obesity, and cardiovascular conditions (Aballay et al., 2013). Nutritional education plays a vital role in improving public health by raising awareness and enhancing the overall nutritional knowledge of society (Elhassan et al., 2013).

Understanding and implementing sound dietary advice is critical for maintaining fitness, staying active, and leading a healthier lifestyle. To promote societal health, it is essential to focus on wholesome food options and food safety, as well as the attitudes and behaviours that influence dietary choices. While simply encouraging healthy eating may not be sufficient, understanding the underlying factors that drive eating behaviours is crucial for effectively promoting a healthy diet. This requires a deeper understanding of the factors influencing eating habits to develop personalized nutritional interventions.

A well-designed nutrition plan should ensure that individuals receive the necessary nutrients to maintain their health, physical fitness, and overall well-being. Thus, the attitudes and beliefs people hold about nutrition must be considered. Improving students' and teachers' nutrition knowledge, attitudes, and practices is essential, as it will lead to a more food-conscious society and healthier individuals (Bano et al., 2013). Given that universities and colleges aim to broaden societal knowledge enhancing students' and educators' nutritional awareness is a key part of this mission.

The success of any educational program depends largely on the quality of the educators who lead it. In addition to teaching literacy, educators also play a critical role in raising awareness and disseminating vital information. This includes addressing issues such as hunger, malnutrition, poverty, and unemployment. To carry out this responsibility effectively, teachers must possess the appropriate skills, maintain a positive outlook, and practice what they teach, serving as role models for others.

Food selection is influenced by nutritional knowledge (NK), which refers to the cognitive process through which individuals acquire information about food and nutrition (Barbosa et al., 2016; Scagliusi et al.,2006). An individual's dietary choices, including what to eat and how much to eat, reflect their nutritional attitudes (Üstün, 2020). On the other hand, health practices aim to protect and enhance health and prevent illness, disability, or death (Yarcheski et al., 2004).

Public school teachers are the cornerstone of any education system, particularly in developing countries like the Philippines. However, their health and well-being have often been overlooked. This study aimed to explore teachers' nutrition knowledge, attitudes, and health practices in a developing country, highlighting the importance of addressing their health-related challenges. Specifically, this study aimed to (i) determine the socioeconomic profile of public elementary teachers, (ii) assess their nutrition knowledge, attitudes, and health practices, and (iii) analyse the relationship between their socioeconomic

profile and their nutrition knowledge, attitudes, and health practices.

This study addresses SDG 3 (Good Health and Well-Being) and SDG 4 (Quality Education). By examining teachers' nutrition knowledge, attitudes, and health practices, this study aims to enhance educators' well-being, which in turn can positively impact students and communities. Improving teachers' health literacy supports SDG 4 by empowering educators to promote healthy lifestyles. Ultimately, this study contributes to sustainable development by fostering healthier, more educated individuals, aligning with global efforts to reduce health disparities and improve quality of life in developing countries.

Methodology

Research Design

This study employed a quantitative research approach, specifically a survey research design, which systematically collects data from a sample population to describe, compare, or explain their knowledge, attitudes, and behaviours (Nardi, 2018; Ortega-Dela Cruz, 2019). This design is appropriate for the study as it allows for the efficient assessment of nutrition knowledge, attitudes, and practices among public elementary school teachers in the Philippines and facilitates the analysis of their relationship with various socio-economic factors.

Research Participants

Purposive sampling was employed to target public elementary school teachers in Los Baños, Laguna, Philippines. Specifically, 21 teachers from a selected public elementary school were enumerated. This group was chosen based on their direct involvement in delivering basic education and their potential influence on students' health-related behaviors, making them well-suited to providing relevant insights into nutrition knowledge, attitudes, and practices within the educational setting.

Informed consent was obtained from all teachers, ensuring that they understood the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without consequence. Confidentiality was maintained by anonymizing responses and securely storing data. Participants were also assured that their responses would only be used for research purposes and would not affect their professional standing. The study was conducted with consideration for the rights, dignity, and well-being of participants.

Instrumentation

A questionnaire was used to collect data on the respondents' socioeconomic profiles as well as their nutrition-related knowledge, attitudes, and practices. To assess these dimensions, the study adapted a 30-item survey from Saeidlou et al. (2016), comprising 10 items each for knowledge, attitude, and practice. The respondents indicated their level of agreement or disagreement with statements corresponding to each area.

Before data collection, the instrument was validated by a panel of experts in public

health, education, and nutrition to ensure clarity, relevance, and appropriateness for the target population. This process followed the recommended instrument validation practices, emphasizing expert judgment to assess content coverage and item clarity (Almanasreh et al., 2019). The necessary revisions were made based on feedback to improve the instrument's validity and contextual suitability.

To ensure reliability, a pilot test was conducted among a small sample (n=15) with similar characteristics to the study population. The internal consistency of the questionnaire was then assessed using Cronbach's alpha. Each domain—knowledge, attitude, and practice—demonstrated acceptable reliability, with alpha coefficients exceeding the commonly accepted threshold of 0.70, indicating that the items within each subscale were consistently measuring the intended constructs.

Data Analysis

Descriptive statistics, including frequencies and percentages, were used to analyze the socioeconomic profiles of the respondents. Also, means were calculated to assess their nutrition knowledge, attitudes, and practices. Spearman's Rank Order Correlation (Spearman's rho) was used to evaluate the relationships between variables. The data were analyzed using the Statistical Package for the Social Sciences (IBM® SPSS®), version 16. The correlation coefficients were interpreted based on Schober et al. (2018), as cited in Cruz (2020).

Results

Socio-Economic Profile of Public Elementary School Teachers

Table 1 presents the socioeconomic profile of the respondents. In terms of age distribution, the majority of teachers (33.33%) were between 31 and 40 years old, followed by those aged 21–30 (28.57%) and 41–50 (28.57%). The smallest proportion (9.52%) was in the 51–60 age group, indicating that most respondents were in the early to mid stages of their careers. The sample was predominantly female, with 85.71% identifying as women and only 14.29% as men, reflecting a gender imbalance commonly observed in the teaching profession. Two-thirds of the respondents (66.66%) were married, while one-third (33.33%) were single. In terms of religious affiliation, the majority (80.95%) were Catholic, while the remaining 19.05% were Christian, indicating a largely homogeneous religious background. When considering family structure, over half of the respondents (52.38%) reported belonging to a conjugal family, 28.57% to nuclear families, and 19.05% to extended families.

The monthly income data revealed that most respondents (61.90%) earned between ₱26,000 and ₱35,000. Smaller proportions reported income in other brackets: 9.52% earned ₱15,000–₱25,000, and equal percentages (9.52% each) fell within the ₱36,000–₱45,000, ₱46,000–₱55,000, and above ₱56,000 ranges. These figures suggest that while

most teachers earn within a moderate-income range, a minority have significantly higher or lower earnings.

Table 1

Socio-economic Profile of Public Elementary School Teachers

Profile	Frequency	Percentage
Age		
21-30	6	28.57
31-40	7	33.33
40-50	7	28.57
51-60	2	9.52
N	21	100
Sex		
Male	3	14.29
Female	18	85.71
N	21	100
Marital status		
Single	7	33.33
Married	14	66.66
N	21	100
Religion		
Catholic	17	80.95
Christians	4	19.05
N	21	100
Type of family		
Nuclear	6	28.57
Conjugal	11	52.38
extended	4	19.05
N	21	100
Monthly income		
15,000-25,000	2	9.52
26,000-35,000	13	61.90
36,000-45,000	2	9.52
46,000-55,000	2	9.52
56,000 above	2	9.52
N	21	100

Nutrition Knowledge, Attitude, and Health Practices of Public Elementary School Teachers

Table 2 presents the nutrition knowledge of public elementary school teachers based on their perceptions of various statements regarding food and nutrition. Their responses reflect personal experiences. The top three statements with the highest mean values are: *Breakfast is the most important meal of the day (*$\bar{X}$ = 4.00); *Exercising can reduce stress (*$\bar{X}$ = 4.00; B*anana and pineapple are high fibre fruits (*$\bar{X}$ = 3.90). In contrast, the three statements with the lowest mean values were *culture and beliefs that can affect nutrition. (*$\bar{X}$ =3.38); *Skipping meals can slow down metabolism. (*$\bar{X}$ =3.33); *Proper hand washing is essential before and after eating. (*$\bar{X}$ =3.40). The overall mean score for teachers' nutritional knowledge was 3.705.

Table 2

Teachers' Nutrition Knowledge

	Statement	Mean	Verbal Interpretation
1.	Skipping meals can slow down metabolism.	3.33	Agree
2.	Culture and beliefs can affect nutrition.	3.38	Agree
3.	Proper hand washing is essential before and after eating.	3.40	Agree
4.	Most of the income should be invested in buying healthy foods.	3.52	Agree
5.	Too much eating of salty foods can cause cardiovascular disease.	3.81	Strongly Agree
6.	Carbohydrates are good sources of energy.	3.81	Agree
7.	Bananas and pineapple are high fibre fruits.	3.90	Agree
8.	Multivitamins are good for my immune system.	3.90	Agree
9.	Breakfast is the most important meal of the day.	4.00	Strongly Agree
10.	Exercising can reduce stress.	4.00	Strongly Agree
	Overall Mean	**3.705**	

Table 3 presents the nutritional attitudes of public elementary school teachers based on their perceptions of various statements related to their food preferences. The top three statements with the highest mean values were: *I feel energized when I take breakfast. (*$\bar{X}$ = 3.90); *Salty foods and fatty foods are bad for my health, and I will limit my intake. (*$\bar{X}$ = 3.76); *Water helps regulate my metabolism (*$\bar{X}$ = 3.71). In contrast, the three statements with the lowest mean values are: *Culture and beliefs can affect nutrition. (*$\bar{X}$ =3.38); *Skipping meals can slow down metabolism. (*$\bar{X}$ =3.33); *Proper hand washing is essential before and after eating. (*$\bar{X}$ =3.40). The overall mean score for teachers' attitudes toward nutrition was 3.561.

Table 3

Teachers' Nutrition Attitude

Statement	Mean	Verbal Interpretation
1. I would not eat French fries.	3.14	Disagree
2. I would eat a lot when stressed.	3.24	Agree
3. I always check the nutrition facts of the food I buy.	3.29	Agree
4. I anticipate food like chips to be junk food.	3.57	Agree
5. I would benefit from the advice of a nutritionist or doctor if I suffer from diseases like high blood pressure, arthritis, gout, UTI, etc.	3.62	Agree
6. I will choose water over soft drinks or iced tea.	3.67	Agree
7. I feel positive and energized after I work out or do physical activities that make me sweat.	3.71	Agree
8. Water helps regulate my metabolism	3.71	Strongly Disagree
9. Salty and fatty foods are bad for my health, and I will limit my intake.	3.76	Agree
10. I feel energized when I take breakfast.	3.90	Agree
Overall Mean:	**3.561**	

Table 4 presents the health practices of public elementary school teachers based on their perceptions of various statements in the questionnaire. The top three statements with the highest mean values were: *I engage in activities that will burn excess calories. (*$\bar{X}$ = 3.71*); Eating fruits and vegetables is part of my daily practice. (*$\bar{X}$ = 3.67); *I don't skip meals. (*$\bar{X}$ = 3.57). In contrast, the three statements with the lowest mean values were: I get adequate sleep. *(*$\bar{X}$ =3.33); I choose healthy snacks like banana cue and water instead of chips and soft drinks. *(*$\bar{X}$ =3.43); *I eat less fatty food. (*$\bar{X}$ =3.38). The overall mean score for teachers' health practices was 3.495.

Table 4

Teachers' Health Practices

Statement	Mean	Verbal Interpretation
1. I eat breakfast every day.	3.38	Agree
2. I get adequate sleep.	3.33	Agree
3. I choose healthy snacks like banana cue and water instead of chips and soft drinks.	3.43	Agree
4. I drink at least 8 glasses of water a day.	3.43	Agree
5. I don't skip meals.	3.57	Agree
6. I engage in activities that will burn excess calories.	3.71	Strongly Agree
7. I eat slowly and chew thoroughly.	3.57	Agree
8. Eating fruits and vegetables is part of my daily practice.	3.67	Strongly Agree
9. I eat less fatty food.	3.38	Agree
10. I control myself about stress eating.	3.48	Agree
Overall Mean	**3.495**	

Furthermore, the results of the correlation analysis revealed a significant relationship between teachers' nutritional knowledge, attitudes, and practices (Table 5). In particular, there was a strong positive relationship between knowledge and attitude (rs=.778), a moderate positive relationship between knowledge and practice (rs=472), and a substantial positive relationship between attitude and practice (rs=621).

Statistical findings also showed a relationship between teachers' sociodemographic characteristics and their nutritional knowledge, attitudes, and practices. However, the strength of the relationship ranges from trivial to weak for all stated variables. That is, there were trivial relationships between teachers' age and knowledge (rs=-.060), age and attitude (rs=080), marital status (rs=-.034), type of family (rs=-.020), practices, monthly income and attitude (rs=-.069), sex (rs=.011), monthly income (rs=.046), and practices. There were weak relationships between sex (rs=.144), marital status (rs= -.285), type of family (rs=.161), monthly income (rs=-.169), knowledge, sex (rs=.266), marital status (rs= .120), type of family (rs=.162), and attitude as well as age and practices (rs=-.203). These findings suggest that teachers' nutritional knowledge, attitudes, and practices may change (either increase or decrease) depending on their age, sex, marital status, family type, and monthly income. However, the strength of these relationships is generally weak.

Table 5

Correlation Analysis

			Knowledge	Attitude	Health Practices
Spearman's rho	Age	Correlation Coefficient	-.060	.080	-.203
		Sig. (2-tailed)	.980	.971	.377
		N	21	21	21
	Sex	Correlation Coefficient	.144	.266	.011
		Sig. (2-tailed)	.534	.244	.961
		N	21	21	21
	Marital Status	Correlation Coefficient	-.285	.120	-.034
		Sig. (2-tailed)	.211	.604	.884
		N	21	21	21
	Family Type	Correlation Coefficient	.161	-.162	-.020
		Sig. (2-tailed)	.486	.484	.930
		N	21	21	21
	Monthly Income	Correlation Coefficient	-.169	-.069	.046
		Sig. (2-tailed)	.463	.766	.845
		N	21	21	21
	Knowledge	Correlation Coefficient	1.000	.778	.472
		Sig. (2-tailed)	.	.000	.031
		N	21	21	21
	Attitude	Correlation Coefficient	.778**	1.000	.621**
		Sig. (2-tailed)	.000	.	.003
		N	21	21	21
	Practices	Correlation Coefficient	.472*	.621**	1.000
		Sig. (2-tailed)	.031	.003	.
		N	21	21	21

*$p < .05$; **p< .01

Discussion

Nutritional knowledge refers to the cognitive process through which individuals acquire and understand information about food and nutrition (Barbosa et al., 2016; Scagliusi et al., 2006). Nutrition attitudes involve personal decisions regarding what and how much to eat (Üstün, 2020). According to Yarcheski et al. (2004), health practices aim to protect, maintain, or improve health and well-being while helping to prevent illness, disability, or premature death.

Several studies have examined how sociodemographic factors influence teachers' nutrition-related knowledge, attitudes, and practices. One such factor is sex. Research indicates that gender differences exist in nutrition

knowledge, with female adolescents often demonstrating higher levels of understanding compared to males (Al-Yateem & Rossiter, 2017; Habib et al., 2023). However, differences in attitudes and practices between male and female teachers have generally not been significant (Aljefree et al., 2023; Husain et al., 2021).

Marital status is another factor that influences nutrition-related behaviours. Married teachers tend to exhibit greater nutrition knowledge, possibly due to their more frequent involvement in family meal planning and dietary decisions (Liu et al., 2018). They are also more likely to adopt healthier eating habits, often preparing and consuming home-cooked meals (Gatley et al., 2014; Gatley, 2016).

Family structure, whether nuclear, extended, or single-parent, can also affect nutrition knowledge, attitudes, and practices. Respondents from nuclear families generally show higher nutritional knowledge than those from single-parent families (Peterson & Rose, 2003). However, the influence of family structure on attitudes and practices remains unclear, with limited research on this relationship.

Monthly income is linked to variations in nutrition-related outcomes. Individuals with higher incomes tend to have greater access to nutritional information, healthier food options, and resources to support better dietary habits (Kumanyika, 2019). Nevertheless, some studies reported no significant relationship between income and nutrition knowledge, attitudes, or practices (Ren et al., 2019; Tricas-Vidal et al., 2022), suggesting that other factors may mediate this association.

Age may also play an important role. Older teachers often have more life and professional experiences, which may contribute to a deeper understanding of nutrition (Liu et al., 2018). Conversely, younger individuals may have more current knowledge and progressive attitudes, growing up in a period of greater awareness of nutrition and health (Poobalan et al., 2014; Sukandar et al., 2015).

Conclusion

This study highlights the critical role of nutrition knowledge, attitudes, and health practices among public elementary school teachers in developing countries. The findings revealed a high level of agreement among respondents in these areas, with significant correlations observed among nutrition knowledge, attitudes, and practices. Moreover, socioeconomic factors, such as age, sex, marital status, family structure, and income, were associated with variations in these nutrition-related outcomes.

Given the influential role of teachers in shaping students' health behaviors, improving their nutrition literacy is essential. These findings underscore the need for targeted nutrition education and wellness programs specifically designed for educators. Investing in the health and well-being of teachers not only benefits them personally but also contributes to a healthier, more informed student population.

Further research with larger and more diverse samples is recommended to strengthen these conclusions. Future studies should investigate additional factors that influence teachers' health behaviors and assess the effectiveness of interventions aimed at improving their nutrition knowledge and practices. Ultimately, prioritizing teacher well-being is a strategic step toward achieving broader educational and public health goals, particularly in developing countries.

Funding Statement: The authors did not receive financial support for this research.

Conflicts of interest: None

References

Aballay, L. R., Eynard, A. R., Díaz, M. D. P., Navarro, A., & Muñoz, S. E. (2013). Overweight and obesity: A review of their relationship to metabolic syndrome, cardiovascular disease, and cancer in South America. *Nutrition Reviews*, *71*(3), 168-179. https://doi.org/10.1111/j.1753-4887.2012.00533.x

Aljefree, N. M., Almoraie, N. M., Althaiban, M. A., Hanbazaza, M. A., Wazzan, H. A., & Shatwan, I. M. (2023). Gender differences in knowledge, attitudes, and practices with respect to type 1 diabetes among Saudi public-school teachers. *BMC Public Health*, *23*(1), 1-11. https://doi.org/10.1186/s12889-023-15043-w

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of methods used for estimating content validity. *Research in social and administrative pharmacy*, *15*(2), 214-221. https://doi.org/10.1016/j.sapharm.2018.03.066

Al-Yateem, N., & Rossiter, R. (2017). Nutritional knowledge and habits of adolescents aged 9 to 13 years in Sharjah, United Arab Emirates: A cross-sectional study. *Eastern Mediterranean Health Journal*, *23*(8), 551-558. https://doi.org/10.26719/2017.23.8.551

Bano, R., AlShammari, E., Fatima, S. B., & Al-Shammari, N. A. (2013). A comparative study of knowledge, attitude, practice of nutrition and non-nutrition student towards a balanced diet in Hail University. *Journal of Nursing and Health Science*, *2*(3), 29-36. Retrieved from https://www.academia.edu/download/97699233/E0232936.pdf

Barbosa, L. B., Vasconcelos, S. M. L., Correia, L. O. D. S., & Ferreira, R. C. (2016). Nutrition knowledge assessment studies in adults: A systematic review. *Ciencia & saude coletiva*, *21*, 449-462. https://doi.org/10.1590/1413-81232015212.20182014

Cruz, R. O. D. (2020). Pedagogical practice preferences among generational groups of learners: Towards effective twenty-first-century higher education. Journal of University Teaching and Learning Practice, 17(5), 1-21. https://doi.org/10.53761/1.17.5.6

Habib, M. A., Alam, M. R., Rahman, T., Chowdhury, A. I., & Shill, L. C. (2023). Knowledge, attitudes, and practices (KAP) of nutrition among schoolteachers in Bangladesh: A cross-sectional study. *Plos one*, *18*(3),

e0283530. https://doi.org/10.1371/journal.pone.0283530

Husain, W., Ashkanani, F., & Al Dwairji, M. A. (2021). Nutrition knowledge among college of basic education students in Kuwait: A cross-sectional study. *Journal of nutrition and metabolism*, 2021. https://doi.org/10.1155/2021/5560714

Elhassan, M. R., Gamal, H. E., & Mohammed, G. S. (2013). Nutrition knowledge, attitude, and practices among students of Ahfad University for women. *Indian Journal of Scientific Research*, 25-35.

Gatley, A., Caraher, M., & Lang, T. (2014). A qualitative, cross-cultural examination of attitudes and behaviour in relation to cooking habits in France and Britain. *Appetite*, *75*, 71-81. https://doi.org/10.1016/j.appet.2013.12.014

Gatley, A. (2016), "The significance of culinary cultures to diet", *British Food Journal*, Vol. 118 No. 1, pp. 40-59. https://doi.org/10.1108/BFJ-06-2015-0228

Kumanyika, S. K. (2019). A framework for increasing equity impact in obesity prevention. *American Journal of Public Health*, *109*(10), 1350-1357. https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305221

Liu, H., Xu, X., Liu, D., Rao, Y., Reis, C., Sharma, M., Yuan, J., Chen, Y., & Zhao, Y. (2018). Nutrition-related knowledge, attitudes, and practices (KAP) among kindergarten teachers in Chongqing, China: A Cross-Sectional Survey. *International Journal of Environmental Research and Public Health*, 15(4), 615. https://doi.org/10.3390/ijerph15040615

Nardi, P. M. (2018). *Doing survey research: A guide to quantitative methods*. Routledge.

Ortega-Dela Cruz, R. (2020). Perceptions of higher agricultural education toward sustainable agricultural development. *Higher Education, Skills and Work-Based Learning*, *10*(1), 187-202. https://doi.org/10.1108/HESWBL-06-2019-0080

Peterson, G. W., & Rose, H. A. (2003). Nuclear families, childhood. In *Primary Prevention and Health Promotion* (pp. 705-713). Springer, Boston, MA. https://doi.org/10.1007/978-1-4615-0195-4_104

Poobalan, A. S., Aucott, L. S., Clarke, A., & Smith, W. C. S. (2014). Diet behaviour among young people in transition to adulthood (18–25-year-olds): A mixed-method study. *Health Psychology and Behavioral Medicine: an Open Access Journal*, *2*(1), 909-928. https://doi.org/10.1080/21642850.2014.931232

Ren, Y., Li, H., & Wang, X. (2019). Family income and nutrition-related health: Evidence from food consumption in China. *Social Science & Medicine*, *232*, 58-76. https://doi.org/10.1016/j.socscimed.2019.04.016

Sukandar, D., Khomsan, A., Anwar, F., Riyadi, H., & Mudjajanto, E. S. (2015). Nutrition knowledge, attitude, and practice of mothers and children's nutritional status improved after a five-month nutrition education intervention.

Int J Sci Basic Appl Res, *23*(2), 424-42. http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

Saeidlou, S. N., Babaei, F., & Ayremlou, P. (2016). Nutritional knowledge, attitude and practice of northwest households in Iran: is knowledge likely to become practice? *Maedica*, *11*(4), 286. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5543519/

Scagliusi, F. B., Polacow, V. O., Cordás, T. A., Coelho, D., Alvarenga, M., Philippi, S. T., & Lancha Júnior, A. H. (2006). Tradução, adaptação e avaliação psicométrica da escala de conhecimento nutricional do National Health Interview Survey Cancer Epidemiology. *Revista de Nutrição*, *19*, 425-436. https://doi.org/10.1590/S1415-52732006000400002

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. Anesthesia & Analgesia, 126(5), 1763–1768. https://doi.org/10.1213/ane.0000000000002864

Tricas-Vidal, H. J., Vidal-Peracho, M. C., Lucha-López, M. O., Hidalgo-García, C., Lucha-López, A. C., Monti-Ballano, S., Corral-de Toro, J., Márquez-Gonzalvo, S., & Tricás-Moreno, J. M. (2022). Nutrition-related content on Instagram in the United States of America: An analytical cross-sectional study. *Foods*, 11(2), 239. https://doi.org/10.3390/foods11020239

Üstün, N. A. (2020). Social physical anxiety and nutritional attitude in athlete and non-athlete university students. *Progress in Nutrition*, *22*(2), 1-22. https://doi.org/10.23751/pn.v22i2-S.10471

Yarcheski, A., Mahon, N. E., Yarcheski, T. J., & Cannella, B. L. (2004). A meta-analysis of predictors of positive health practices. *Journal of Nursing Scholarship*, *36*(2), 102-108. https://doi.org/10.1111/j.1547-5069.2004.04021.x