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Perception and knowledge of functional foods in university nutrition and health students.

Percepción y conocimiento de los alimentos funcionales en estudiantes universitarios de nutrición y salud.

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RESUMEN

Introducción: La percepción de los alimentos funcionales (AF) está influenciada por la información disponible, las influencias socioculturales y las características sensoriales y nutricionales, mientras que su consumo está determinado, en mayor medida, por el costo y la accesibilidad. **Objetivo:** Este estudio exploratorio analizó la percepción de AF en 752 estudiantes de licenciatura en nutrición y posgrados en salud de la Facultad de Salud Pública y Nutrición (FaSPyN) de la Universidad Autónoma de Nuevo León (UANL). **Material y Método:** Se aplicó un cuestionario que evaluó: 1) asociación de palabras con AF, 2) percepción sobre beneficios, accesibilidad y consumo, y 3) fuente de información y motivo de consumo. **Resultados:** El término más asociado con AF fue "salud". Más de un tercio de los estudiantes relacionó los AF con bienestar y beneficios para la salud, y el 43.8% adquirió conocimiento sobre ellos en la escuela. Además, el consumo de omega-3, prebióticos y fibra, esta última como componente de alimentos funcionales, estuvo significativamente asociado con el nivel de estudios. **Conclusión:** Los estudiantes de posgrado muestran una percepción más clara de los alimentos funcionales (AF) en comparación con los de licenciatura, lo que evidencia la necesidad de fortalecer la enseñanza sobre este tema en los programas de grado para mejorar su comprensión y fomentar un consumo informado.

Palabras Clave: Alimentos funcionales, percepción, consumo y conocimiento.

ABSTRACT

Introduction: The perception of functional foods (FF) is influenced by available information, sociocultural influences, and sensory and nutritional characteristics, while their consumption is determined, to a greater extent, by cost and accessibility. **Objective:** This exploratory study analyzed the perception of FF in 752 undergraduate students in nutrition and postgraduate students in health at the Facultad de Salud Pública y Nutrición (FaSPyN) at the Universidad Autónoma de Nuevo León (UANL). **Material and method:** A questionnaire was applied that evaluated: 1) association of words with FF, 2) perception of benefits, accessibility, and consumption, and 3) source of information and reason for consumption. **Results:** The term most associated with FF was "health." More than one-third of students related FFs to wellness and health benefits, and 43.8% gained knowledge about them in school. In addition, the consumption of omega-3, prebiotics and fiber, the latter as a component of functional foods, was significantly associated with the level of education. **Conclusion:** Graduate students show a clearer perception of FF compared to undergraduate students, which shows the need to strengthen teaching on this topic in undergraduate programs to improve their understanding and encourage informed consumption.

Keywords: Functional foods, perception, consumption and knowledge

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Significance

This study provides insights into the perception of functional foods in health science students, a key group in promoting nutrition education and adopting healthy eating habits. The findings reveal a significant relationship between academic level and functional foods consumption, highlighting the need to strengthen its teaching at the undergraduate level. Given the growth of the market and its health benefits, understanding the factors that influence its acceptance is crucial. This research contributes to the design of educational strategies and interventions aimed at improving the perception and informed consumption of functional foods in the population, facilitating the implementation of specific actions for their promotion.

Introduction

In recent years, growing awareness of the health-promoting properties of diet has increased interest in foods that support physiological well-being. Functional foods are defined as natural or processed products that, beyond providing basic nutrition, contain bioactive compounds—whether fully characterized or under investigation—that confer scientifically supported health benefits when consumed in safe and effective amounts (Faienza *et al.*, 2024; Damián *et al*., 2022; Martirosyan & Singh, 2015). The concept originated in Japan in the 1980s, where such foods were described as fulfilling nutritional, sensory, and physiological roles, including support of the nervous and immune systems (Someko *et al.*, 2024; Granato *et al*., 2020; Temple, 2022).

Growing recognition of the health benefits of diet has intensified interest in foods that support physiological well-being. Functional foods are defined as natural or processed products that, beyond basic nutrition, contain bioactive compounds—characterized or under study—that provide scientifically supported health benefits when consumed in safe and effective doses (Faienza *et al.*, 2024). For a food to be considered functional, it must comply with the regulatory framework of each country. Agencies such as the FDA (USA), EFSA (EU), and ANVISA (Brazil) evaluate health claims based on scientific evidence (Essa *et al.*, 2023; Ponte *et al.*, 2024). However, many countries lack a formal definition, which creates uncertainty for manufacturers and consumers (Martirosyan *et al*., 2022). In China, functional foods are defined as products with approved, health-related claims, suitable for specific populations and safe for human consumption, though not intended to diagnose or treat disease (Chen & Wu, 2022; Zawistowski, 2011).

The functional food market has grown steadily in regions such as the United States, Asia, Europe, and Mexico, driven by greater public interest in health and longevity (Rojas-Rivas *et al*., 2019; Ali & Rahut, 2019). While students in health-related fields are part of this trend, their nutritional knowledge may lead to perceptions that differ from those of the general population (Joseph *et al*., 2018). University represents a transitional stage to adulthood, where students begin making independent dietary and lifestyle choices (Al-Awwad *et al*., 2021). Environmental factors—such as food availability, accessibility, and social norms—significantly influence eating behaviors and may predispose students to unhealthy patterns, highlighting the need for targeted dietary interventions in this population (Jimeno-Martínez *et al*., 2021).

Understanding consumers' perception, attitudes, and purchasing behavior is key to promoting the acceptance and consumption of functional foods (Rojas-Rivas et al., 2018; Nystrand & Olsen, 2020). University students in health-related fields play a strategic role in disseminating information about these products, yet several factors—such as knowledge level, cost, social influence, and marketing—affect their choices (Britez & Romero, 2019; Rodríguez-Tadeo *et al*., 2017). Despite the growing popularity of functional foods, studies have reported misconceptions and limited understanding among students, and evidence on their perception and motivation remains scarce. To address this gap, this study aimed to explore the perception of functional foods among students at the Facultad de Salud Pública y Nutrición of the Universidad Autónoma de Nuevo León.

Material and methods

2.1 Study population and sampling

2.1.1 Definition of the sampling frame

The study population consisted of male and female students enrolled in undergraduate and graduate programs at the *Facultad de Salud Pública y*

Nutrición (FaSPyN) of the *Universidad Autónoma de Nuevo León* (UANL) during the January–August 2020 academic term. First-semester students were excluded, as they were assumed to lack sufficient familiarity with the research topic. The graduate student group included individuals from the *Especialidad en Nutrición Clínica* (Clinical Nutrition Specialization, CNS), *Maestría en Ciencias en Nutrición* (Master of Science in Nutrition, MScN), and *Maestría en Salud Pública* (Master of Science in Public Health, MScPH) programs.

Information regarding the total number of students enrolled by academic level and program was obtained from the Academic and Records Department of FaSPyN. Table 1 presents the institutional distribution of the entire student population (N = 2,128), which was used as the sampling frame for determining the required sample size and for guiding the proportional distribution of the study sample.

Table 1. Distribution of FaSPyN students by educational level (January–August 2020).

Educational level	Student Population (N)	Percentage (%)
Graduate studies	69	3
Undergraduate (2nd-4th semester)	881	41
Undergraduate (5th-7th semester)	591	28
Undergraduate (8th-10th semester)	587	28
Total	2128	100

Source: Academic and Records Department, FaSPyN

2.1.2 Definition of the sample size

The required sample size was estimated using Decision Analyst STATS™ 2.0 software, applying a standard formula for population proportions. The parameters *p* and *q* were defined as the estimated proportion of students with a favorable perception of functional foods (*p*) and those without such perception (*q*), respectively. To ensure maximum variability and obtain the most conservative estimate, *p* was set at 0.50 and *q* at 0.50. A 3% margin of error and a 95% confidence level were established. Based on these parameters and the total student population at FaSPyN (N = 2,128), the minimum required sample size was calculated as 711 participants. A final sample of 752 students was planned and collected to meet and exceed this requirement, ensuring a proportional distribution according to academic level. Table 2 presents the planned sample distribution derived from the population structure shown in Table 1.

2.1.3 Sampling method

A non-probability convenience sampling method was used to include each student. University students were invited to voluntarily participate in the study.

Table 2. Sample distribution by level of education

Educational level	Student Population (N)	Percentage (%)
Graduate studies	55	7
Undergraduate (2nd-4th semester)	283	38
Undergraduate (5th-7th semester)	224	30
Undergraduate (8th-10th semester)	190	25
Total	752	100

2.1.4 Inclusion, Exclusion, and Elimination Criteria

The inclusion criteria for the study were as follows: students enrolled in undergraduate or graduate programs at the FaSPyN of the UANL during the January–August 2020 academic term, and who voluntarily agreed to participate in the survey. Exclusion criteria included students enrolled in their first academic semester, as it was considered that they had not yet received formal academic instruction related to nutrition or functional foods.

Elimination criteria applied to survey responses that were incomplete, inconsistent, or submitted more than once by the same participant (based on duplicated identification data or submission timestamps). In total, all 752 surveys included in the final analysis met the quality control parameters and were considered valid for statistical processing.

2.2 Design and application of the Perception Questionnaire (PQ)

The development of the questionnaire was based on the information published by different authors. The questionnaire evaluated the perception of functional foods in FaSPyN students, grouping them according to the current semester and academic level (Bachelor's Degree: 2nd-4th; 5th-7th; 8th-10th and Postgraduate: CNS; MScPH, and MScN. The PQ was applied electronically through the Google Forms platform. It consisted of three blocks:

1. Free word association, consisted of the respondent writing the first three words that came to mind when hearing "functional foods", this block was elaborated based on previous publications (Guerrero et al., 2010; Rojas-Rivas et al., 2018; Rojas-Rivas et al., 2019). All terms mentioned were initially recorded without restriction and subsequently grouped into conceptual categories based on semantic similarity. Categories were defined inductively by the researchers and validated through consensus. Entries that did not correspond to discrete concepts—such as prepositions, non-substantive expressions, or vague or redundant wording—were excluded from the final analysis to ensure the methodological rigor of the word association technique. Additionally, in accordance with the cognitive salience principle,

Table 3. Perception Questionnaire of Functional Foods

Items	True	False	Don't know
1. Functional foods can repair damage caused by an unhealthy diet.			
2. Functional foods are intended only for those with health problems.			
3. The consumption of functional foods improves my health status.			
4. Regular consumption of these foods can prevent diseases.			
5. Functional foods contain unnatural substances.			
6. These products are not easy to find.			
7. It is difficult to distinguish between functional and conventional foods.			
8. Functional foods taste worse than conventional foods.			
9. The information on the label is hard to understand.			
10. Functional foods are just a passing trend.			
11. Functional foods are unnecessary.			
12. For a healthy person, using functional foods makes no sense.			
13. I am afraid functional foods may have side effects.			
14. I do not believe in the properties of functional foods.			
15. If consumed in excess, these foods can be harmful.			
16. Price is an obstacle to purchasing functional foods.			

Source: Based on Rodríguez-Tadeo (2017) with adaptations according to Ali & Rahut (2019)

the first word mentioned by each respondent was considered as the most immediate and relevant association with the term "functional foods," and was prioritized in the analysis.
2. To assess the students' knowledge of FF and their properties, a multiple-choice questionnaire (true/false/don't know) was used, consisting of 16 items. The structure of the questionnaire (Table 3) was based on the proposal of Rodríguez-Tadeo (2017), with slight methodological adaptations according to Ali & Rahut (2019).
3. To explore the motivation and frequency of FF consumption, a multiple-choice section was implemented, consisting of four questions on knowledge, frequency, and reason for FF consumption (Joseph et al., 2018; Rojas-Rivas et al., 2018). Finally, to explore the reason for consuming bioactive compounds, a list of bioactive compounds (calcium, carotenoids and lycopene, omega 3, probiotics, prebiotics, fiber and curcumin) was added.

2.3 Ethics
All surveyed university students were informed of the study's objective and asked for voluntary participation. The questionnaire was answered anonymously, following the guidelines of the General Health Law on Health Research. This study falls under the category of low-risk research.

2.4 Statistical Analysis
The statistical analysis was performed by generating a database in IBM SPSS Statistics V25.0, including the data obtained from the survey administered to the 752 university students. The consolidated database included variables such as education level, age, free word association, multiple-choice questionnaire, and reasons for and consumption of FF and/or bioactive compounds.
In the free word association section, five individual entries were excluded because they did not correspond to identifiable or conceptually relevant terms (e.g., prepositions, non-substantive responses, or ambiguous phrases), in accordance with the criteria established for semantic categorization.

To analyze the association between students' perceptions of functional foods and their educational level, Pearson's Chi-square test (χ^2) was used through contingency tables for the corresponding categorical variables. In all cases, a significance level of $\alpha = 0.05$ was used to determine statistically significant associations.

Results
In Table 4, the total number of university students evaluated is shown, with 92.7% belonging to undergraduate programs (37.6% from 2nd-4th semester, 29.8% from 5th-7th semester, and 25.3% from 8th-10th semester), and 7.3% belonging to graduate programs (2.8% from MScN, 3.7% from CNS, and 0.8% from MScPH). The female and male gender representation in the sample was 87.2% and 12.5%, respectively. The students' ages ranged from 17 to 49 years.

Table 4. Characteristics of the studied population

	n	**%**
Gender		
Male	94	12.5
Female	658	87.5
Educational Level		
CNS	28	3.7
MScN	21	2.8
MScPH	6	0.8
Undergraduate (2nd-4th semester)	283	37.6
Undergraduate (5th-7th semester)	224	29.8
Undergraduate (8th-10th semester)	190	25.3
Total	752	100

3.1 Free Word Association

From the 752 respondents, a total of 106 distinct words were recorded in the free word association exercise. The most frequently mentioned in the first position were "health" (96), "healthy" (50), "nutritious" (50), and "beneficial" (46). These terms were grouped into 23 categories and subsequently organized into nine dimensions, as proposed by Rojas-Rivas et al (2018). Health, Nutrition, Foods and Nutrients, Hedonism and Body Care, Energy and Supplements, New Foods, Essential Foods, Practicality and Economy, and Medicinal Function (Table 5).

Word associations differed by academic level. Undergraduate students most frequently mentioned "health," followed by terms like "nutritious," "healthy," and "beneficial," depending on their semester. Among graduate students, "health" and "antioxidant" predominated in CNS and MScN groups, while MScPH students most often cited "nutrition," along with "beneficial" and "healthy."

3.2 Perception of Functional Foods by Level of Education

Contingency tables and graphs (Figure 1) were generated to compare questionnaire responses by educational level. Significant associations were found in the following items:

-Item 1: 68% believed FF can repair damage from an unhealthy diet ($\chi^2 = 31.699$, df = 10, $p < 0.001$).

-Item 5: 51% disagreed that FF contain unnatural substances, with CNS and MScN students reporting the highest disagreement ($\chi^2 = 46.074$, df = 10, $p < 0.001$).

-Item 7: 49% did not find FF difficult to distinguish from conventional foods, especially graduate students ($\chi^2 = 33.079$, df = 10, $p < 0.001$).

-Item 13: 61% denied adverse health effects from FF ($\chi^2 = 22.289$, df = 10, $p = 0.014$).

-Item 15: 43% believed excessive FF consumption could be harmful ($\chi^2 = 34.157$, df = 10, $p < 0.001$).

-Item 16: 44% reported that price is not a barrier to FF purchase ($\chi^2 = 26.486$, df = 10, $p = 0.003$).

In contrast, no significant association was observed in Item 3 (FF improve health, $p = 0.701$) or Item 4 (FF prevent disease, $p = 0.698$). Overall, graduate students showed perceptions more aligned with the scientific concept of functional foods.

Table 5. Dimensions and categories obtained from the questionnaire

Dimensions	Categories	Percentages (%)
Health	Health, Well-being, Specific health benefits, Vitality	34.4
Nutrition	Nutrition, Good nutrition	5.3
Foods and nutrients	Nutritional characteristics, Foods, Optimal foods	29.3
Hedonism and body care	Hedonistic attitudes, Sensory characteristics, Body composition	1.3
Energy and supplements	Energy, Supplement, Fortified	6.4
New foods	Foods related to nature, New foods	6.9
Essential foods	Necessary, Daily foods	3.6
Practicality and economy	Practical and economical, High costs	0.9
Medicinal function	Medicinal and preventive, Functional	11.2
Eliminated (5)*		0.7
	Total	100

*Did not meet the questionnaire instructions.

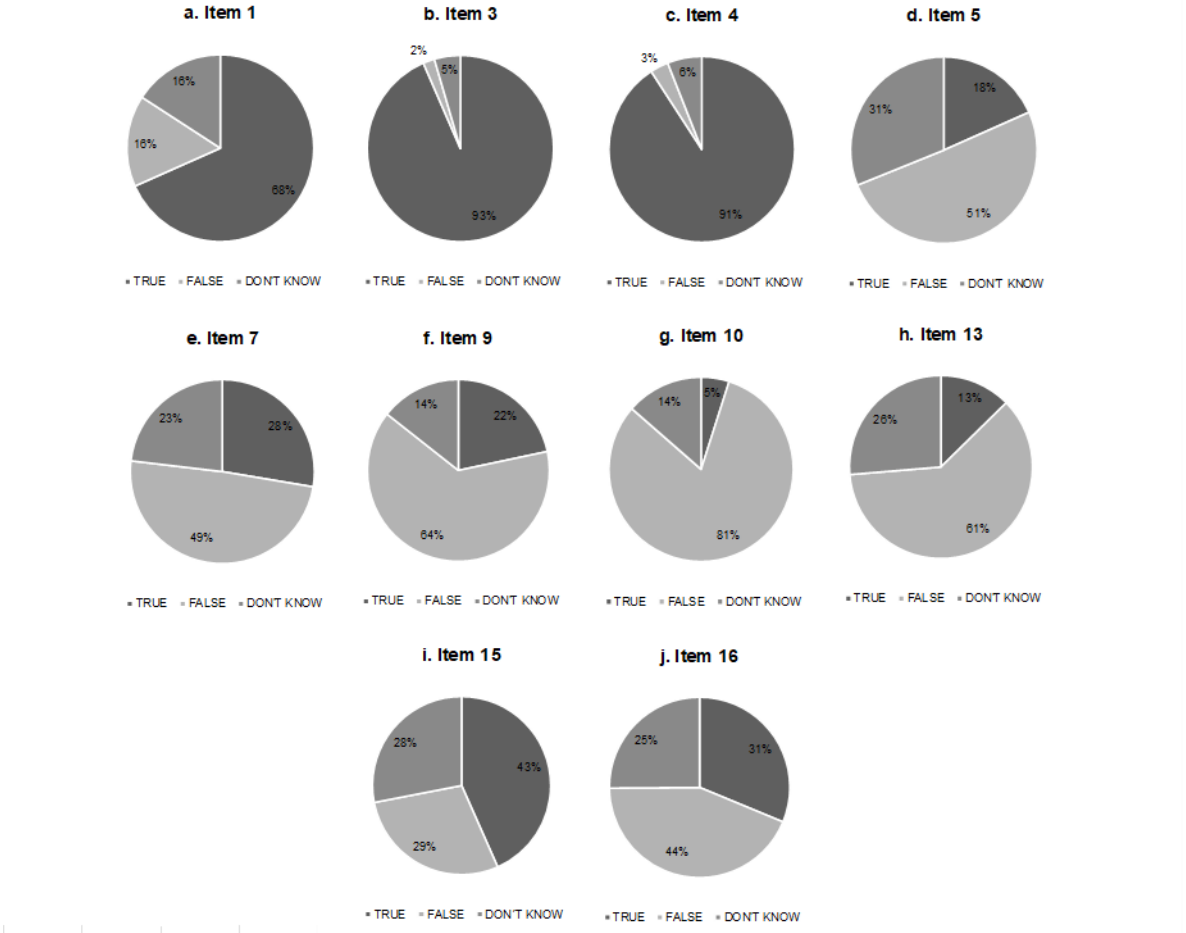

Figure 1. Perception of Functional Foods in Different Items: **a. Item 1**: Functional foods can repair the damage caused by an unhealthy diet; **b. Item 3:** The consumption of functional foods improves my health status; **c. Item 4:** The regular consumption of this type of food can prevent diseases; **d. Item 5:** Functional foods contain unnatural substances; **e. Item 7:** It is difficult to distinguish functional foods from conventional ones; **f. Item 9**: The information on the label is difficult to understand; **g. Item 10:** Functional foods are simply a passing trend; **h. Item 13:** I am concerned that functional foods may have side effects; **i. Item 15:** If consumed in excess, these foods may be harmful; **j. Item 16:** Price is an obstacle to acquiring functional foods.

3.3 Reason and Consumption of Bioactive Compounds

In the third section, it was found that 43.8% of the students reported having gained knowledge about functional foods (FF) in school classes, followed by 30.1% through healthcare professionals, and 23.9% through the internet and social media (Figure 2). A significant association was observed between the source of knowledge about FF and the level of education ($\chi^2 = 35.215$, df = 10, p = 0.001).

Graduate students in the CNS and MScN programs showed the highest percentages of learning through school classes, with 64.3% and 57.1%, respectively. Regarding FF consumption, 83.4% of the students reported consuming them, and no significant association was found with educational level ($\chi^2 = 3.064$, df = 5, p = 0.659). Similarly, the frequency of FF consumption was not significantly associated with education level ($\chi^2 = 5.000$, df = 5, p = 0.422). Lastly, the reason for consuming FF showed no statistically significant association either ($\chi^2 = 8.852$, df = 5, p = 0.080), although 37.5% of the students reported doing so because they contain health-beneficial substances.

Regarding the consumption of functional foods (FF) and/or bioactive compounds, 43.75% of the students (n = 430) reported consuming calcium, and among them, 96% (n = 413) did so for bone health. A total of 25.7% (n = 322) reported consuming carotenoids and lycopene, primarily for their antioxidant properties (48.18%, n = 155). Omega-3 was consumed by 32.6% of students (n = 413), with 43.26% (n = 179) citing cardiovascular health as the main reason. Additionally, 42.8% (n = 406) reported consuming probiotics, 32.4% (n = 347) prebiotics, and 50% (n = 468) fiber; of these, 45.65% (n = 185), 45% (n = 156), and 90% (n = 421), respectively, did so for gastrointestinal health. A statistically significant association was observed between the level of education and the consumption of omega-3 ($\chi^2 = 24.095$, df = 5, p = 0.001), prebiotics ($\chi^2 = 23.183$, df = 5, p = 0.001), and fiber ($\chi^2 = 29.805$, df = 5, p = 0.001).

A significant association was observed between education level and the consumption of omega-3 ($\chi^2 = 24.095$, df = 5, p = 0.001), prebiotics ($\chi^2 = 23.183$, df = 5, p = 0.001), and fiber ($\chi^2 = 29.805$, df = 5, p = 0.001). Among specific groups, 75% of CNS students reported consuming calcium, 80% of undergraduate students from the 2nd to 4th semester consume carotenoids and lycopene, and 73% indicated consuming omega-3. These differences were statistically significant for calcium ($\chi^2 = 27.201$, df = 5, p = 0.001), carotenoids and lycopene ($\chi^2 = 32.266$, df = 5, p = 0.001), and omega-3 ($\chi^2 = 24.095$, df = 5, p = 0.001).

Lastly, 14.5% of students (n = 283) reported consuming curcumin; 40% (n = 113) did so for its anti-inflammatory properties and 26% (n = 74) for its antioxidant properties. However, no significant association was found between curcumin consumption and level of education ($\chi^2 = 7.844$, df = 5, p = 0.165).

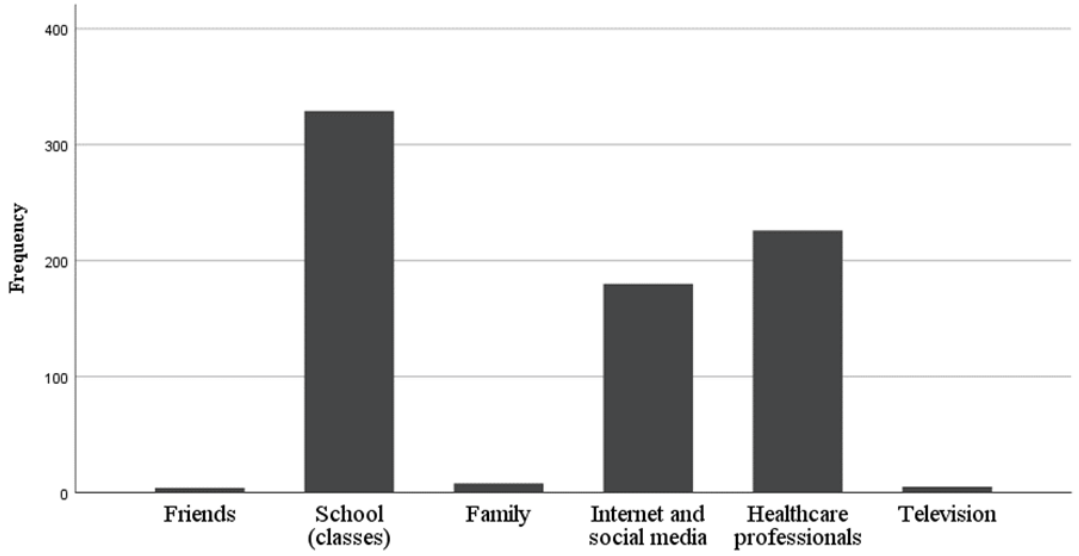

Figure 2. Knowledge of functional foods (FF) obtained through different means.

Discusion

4.1 Free words association

The free word association technique is a qualitative tool widely used to explore conceptual structures in psychology, sociology, and food science. It allows for the capture of emotional and cognitive associations with minimal complexity (Dean, 2012; Guerrero et al., 2010). While de Andrade et al. (2016) identified 1,094 terms in a diverse Brazilian population, this study yielded 106 first-mention words, likely reflecting the academic homogeneity of the sample, composed exclusively of students in the health sciences.

Rojas-Rivas et al (2018) assessed functional food perception using word association in a diverse public sample in Mexico City, identifying 277 terms—most frequently "nutritious," "healthy," and "health." In this study, "health" also predominated, but terms like "micronutrients" and "natural foods" were more common, likely due to participants' academic background in nutrition. Unlike prior findings, perception here was associated with educational level but not with age.

4.2 Perception of functional foods according to educational level

Food perception is shaped by individual, social, and educational factors, including gender (Woodhall-Melnik & Matheson, 2017). The growing popularity of functional foods reflects increased interest in health and well-being (Román et al., 2017; Rojas-Rivas et al., 2019). This study supports that trend, as many respondents viewed functional foods as beneficial for counteracting poor diets and free of artificial substances. Graduate students showed greater alignment with the scientific concept, suggesting an influence of educational level on perception.

Contrary to previous reports, this study found no significant association between educational level and the belief that functional foods improve health or prevent disease. This may indicate that while consumers recognize general benefits, their understanding of specific effects remains limited. Similar findings by Rojas-Rivas, et al., (2019), suggest that familiarity may increase acceptance without deep comprehension.

Approximately half of the respondents believed that excessive intake of functional foods could be harmful, highlighting the need for evidence-based nutrition education. This perception may stem from concerns about industrial food composition and limited regulatory clarity. Similarly, Safraid *et al*. (2024) reported that misinformation and mistrust in the food industry influence perceived risks, reinforcing the importance of clear communication strategies.

Over half of the respondents believed that functional foods can repair damage caused by an unhealthy diet, a perception consistent with the 56.5% reported by Rodríguez-Tadeo (2017). Furthermore, 93.5% stated that these products improve health status, surpassing the 69.9% observed in the same study. This difference may be attributed to the academic composition of the sample, as this study focused on students in health and nutrition, while the comparison study included individuals from unrelated disciplines such as advertising, education, and the arts.

Ponte *et al*. (2025) found that functional food acceptance is influenced by prior knowledge, trust in information, and educational level. Our findings support this, as postgraduate students showed greater familiarity with concepts related to functional foods, reinforcing the role of academic training in shaping consumer perception.

These findings are consistent with recent studies that have explored the factors influencing the perception of functional foods. Baker *et al*. (2022) identified that the acceptance of functional foods is determined by five main categories: a) product characteristics (flavor, texture, price), b) sociodemographic characteristics (age, gender, educational level), c) psychological characteristics (attitudes, beliefs, and knowledge), d) behavioral characteristics (consumption habits and dietary patterns), and e) physical characteristics related to health and well-being. Our findings reflect this trend, as academic training in the field of nutrition and health appears to be associated with a better understanding of functional foods, especially in relation to terms such as micronutrients and natural foods.

4.3 Motive and consumption of bioactive compounds

Most respondents reported learning about functional foods through school classes, consistent with their academic context. In contrast, other studies found differing sources: Joseph *et al*., (2018) identified

medical professionals, while Ali & Rahut (2019) reported family and peers. The academic environment and exposure to health professionals may explain why 83.4% of participants in this study were familiar with and consumed functional foods (Vella et al., 2014).

Among the bioactive compounds present in functional foods responsible for their beneficial effects, the consumption of calcium, omega-3, carotenoids, and lycopene was found to be associated with the level of education. Students in the 2nd to 4th semesters reported a higher intake of omega-3 (80%) as well as carotenoids and lycopene (73%). On the other hand, 75% of students in the CNS program reported consuming calcium. This variability may be due to the fact that CNS students are aware that calcium is present in various foods of the daily diet, such as corn and its derivatives, milk and dairy products, certain cereals, and enriched or fortified products (Malmir et al., 2019; Meléndez-Sosa et al., 2020), whereas students at lower academic levels may lack this information.

Differences in the perception and motivation for consuming functional foods according to educational level observed in this study are consistent with previous research. For example, Joseph et al., (2018) reported high FF consumption among Indian medical students, while Morawska et al., (2016) found greater intake among Polish nutrition students compared to pharmacy students. Other studies highlight that FF choices vary across regions—such as red ginseng and supplements in Korea (Kang et al. 2011), or fruits and cereals in Pakistan (Ali & Rahut, 2019) —depending on age, food culture, and nutritional awareness.

Consumer perception of FF is truly important, as rejection prevents the use and appreciation of their health benefits. FF have been developed across almost all product categories, especially everyday items, with the aim of improving overall bodily function, reducing the risk of certain diseases, and even addressing some ailments or conditions (Puhakka et al., 2018).

Conclusion

This study highlights the relevance of academic training in shaping the perception and conceptual understanding of FF among health sciences students. Although over 80% of respondents reported consuming FF, no statistically significant association was found between educational level and the frequency, reason, or likelihood of FF consumption. However, graduate students, particularly those enrolled in clinical nutrition and health-related programs, exhibited perceptions more consistent with the scientific definition of FF, suggesting that academic advancement may contribute to a more accurate interpretation of their role in health promotion and disease prevention.

These findings underscore the opportunity to reinforce FF-related education, especially at the undergraduate level, through more structured curricular strategies. Promoting a food culture grounded in scientific evidence from early academic stages may strengthen the capacity of future health professionals to make informed dietary choices and to advocate for functional nutrition in their personal, clinical, and community settings.

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