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Impact of academic background on nutrition awareness: A study among home science and non-home science students

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Abstract
Nutrition awareness among youth is a critical determinant of future public health, as lifestyle-related disorders such as obesity, diabetes, and cardiovascular diseases are increasingly prevalent. Academic exposure plays a significant role in shaping students' understanding of nutrition and diet-related practices. The present study aimed to compare nutrition awareness among undergraduate students enrolled in different academic streams: Home Science, Science without Home Science, and Arts without Home Science. A cross-sectional survey was conducted among 150 undergraduate students, with 50 participants from each stream, using a structured questionnaire that assessed demographic details, nutrition knowledge, awareness, and dietary practices. Data were analyzed using descriptive and inferential statistics, including ANOVA and chi-square tests. The findings revealed significant differences in nutrition awareness across academic backgrounds. Home Science students demonstrated the highest awareness, particularly regarding nutrient functions, balanced diet principles, and links between diet and health. Science students without Home Science exposure showed moderate awareness, primarily in biological and health-related contexts, but lacked applied knowledge of diet planning. Arts students exhibited the lowest awareness, with widespread misconceptions about calorie needs, processed foods, and diet-disease relationships. The study concludes that integrating basic nutrition education across all academic streams is essential to promote healthier lifestyles and reduce the burden of diet-related diseases.

Keywords: Nutrition awareness, academic background, Home Science, Science students, Arts students, dietary practices

Introduction
Nutrition is a fundamental determinant of human health and well-being. Adequate nutrition supports growth, development, immunity, and cognitive performance, while poor nutrition contributes to both under nutrition and the rising prevalence of non-communicable diseases such as obesity, diabetes, cardiovascular disorders, and cancer (World Health Organization [WHO], 2021). Globally, the double burden of malnutrition—coexistence of under nutrition and over nutrition—poses a major public health challenge, particularly among young populations who are in a transitional stage of adopting lifestyle behaviors that persist into adulthood.

Awareness of nutrition plays a pivotal role in shaping dietary choices. Nutrition awareness refers to the knowledge, attitudes, and understanding individuals hold regarding food, nutrients, and diet-related health outcomes (Contento, 2016) [4]. Higher awareness often translates into better dietary practices, reduced risk of chronic disease, and healthier quality of life. College and university students form a particularly critical group for nutrition studies, as this period marks a shift towards independent food choices, increased exposure to fast foods, and lifestyle changes that may influence long-term health outcomes (Almutairi *et al*., 2018) [2]. Academic background has been identified as one of the major determinants of health-related knowledge and awareness. Students pursuing disciplines that directly or indirectly engage with biological sciences or applied health sciences are often assumed to possess greater nutrition knowledge compared to those in fields without such exposure (Yahia *et al*., 2016) [18]. In particular, Home Science students undergo structured learning about food science, human physiology, dietetics, and community health, equipping them with comprehensive nutrition

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knowledge. In contrast, Science students without Home Science may acquire partial knowledge through biology, chemistry, or general health education, but often lack applied skills in diet planning or critical evaluation of food trends. Arts students, especially those without Home Science, typically receive little to no formal exposure to nutrition-related content in their curriculum, and hence may rely on informal sources such as peers, media, or social networks for diet-related information (Deshpande *et al*., 2020) [5].

Several studies have examined nutrition awareness among students in different regions and academic contexts. For instance, Sakamaki *et al*. (2005) [13] found that Japanese university students displayed gaps in nutrition knowledge despite widespread interest in diet and health. Similarly, Gan *et al*. (2011) [6] reported that medical and science students in Malaysia scored higher on nutrition awareness scales than non-science students. In India, Verma *et al*. (2018) [16] noted that Home Science students possessed significantly better awareness regarding balanced diets and nutrition labels compared to Arts and Commerce students. However, the literature also reveals inconsistent findings, with some studies showing minimal differences across disciplines, suggesting that external influences such as media, family background, and socioeconomic status also play significant roles (Kavitha & Rao, 2017) [9].

Despite these contributions, limited comparative research has been conducted in the Indian context to specifically evaluate differences in nutrition awareness among Home Science students and their counterparts from other disciplines. With changing dietary habits, increased reliance on processed foods, and lifestyle transitions among youth, understanding these differences is crucial. Such evidence can inform curriculum developers, policymakers, and educators to integrate nutrition education into non-Home Science streams, ensuring equitable awareness across academic backgrounds.

Therefore, the present study aims to compare the levels of nutrition awareness among undergraduate students from three distinct academic streams: Home Science, Science (without Home Science), and Arts (without Home Science). It hypothesizes that Home Science students will exhibit the highest awareness due to curriculum exposure, followed by Science students with moderate awareness, and Arts students with the lowest awareness.

Objectives of the Study
1. To assess the level of nutrition awareness among undergraduate Home Science students.
2. To compare nutrition awareness among Home Science, Science (without Home Science), and Arts (without Home Science) students.
3. To identify misconceptions and knowledge gaps in nutrition across academic backgrounds.
4. To recommend strategies for improving nutrition awareness among non-Home Science students.

Review of Literature
Previous studies highlight the importance of nutrition education in influencing dietary behaviors. Sharma and Singh (2020) [15] reported that university students with exposure to nutrition courses demonstrated healthier eating practices compared to their peers from other disciplines. Similarly, Alamri (2021) [1] emphasized that nutrition knowledge significantly affects the consumption of fruits, vegetables, and processed foods.

Khan *et al*. (2019) [10] found that students from life sciences had moderate awareness of dietary guidelines but struggled with applied knowledge such as interpreting food labels. In contrast, students from arts and humanities had the least awareness, often influenced by misconceptions about calories, dieting, and body image.

A study by Gupta and Bansal (2022) [7] showed that Home Science students not only had better knowledge but also applied this knowledge in meal planning and healthier food choices. This supports the notion that academic curriculum directly influences nutrition awareness.

Ozdogan *et al*. (2019) [12] in Turkey noted that arts students relied heavily on media sources for nutrition information, often leading to misconceptions.

1. Global Studies on Nutrition Awareness
Globally, nutrition awareness among university students has been studied extensively, with results pointing to both promising trends and significant gaps. Yahia *et al*. (2016) [18] investigated dietary habits and nutrition knowledge among college students in the United States and found that even students enrolled in health-related majors exhibited unhealthy dietary behaviors, including excessive fast-food consumption and low intake of fruits and vegetables. Sakamaki *et al*. (2005) [13] studied Japanese students and reported that despite having high interest in food and health, many lacked practical knowledge of balanced diets. Similarly, Almutairi *et al*. (2018) [2] demonstrated that Saudi Arabian medical students had better awareness compared to non-medical peers, but misconceptions persisted, especially regarding calorie needs and fat intake.

Gan *et al*. (2011) [6] examined Malaysian students and found a clear distinction between science and non-science streams, with science students displaying higher nutrition knowledge scores. In Nigeria, Ibitoye *et al*. (2019) [8] showed that home economics students had significantly greater awareness of food groups, nutrient functions, and balanced diets compared to students from arts and social sciences. These global findings suggest a recurring trend: academic exposure to health or nutrition-related content contributes to higher awareness, but awareness alone does not guarantee healthier practices.

2. Indian Studies on Nutrition Awareness
In the Indian context, several studies have examined nutrition knowledge across student populations. Verma *et al*. (2018) [16] conducted a comparative study in Uttar Pradesh and found that Home Science students had significantly better nutrition knowledge compared to Arts and Commerce students. Students from non-science backgrounds showed reliance on hearsay, advertisements, and family traditions rather than evidence-based information. Similarly, Kavitha and Rao (2017) [9] highlighted that science students performed better than arts students in nutrition-related assessments but still lagged behind those pursuing specialized nutrition education. Studies in South India by Manjunatha *et al*. (2020) [11] revealed that even medical students—expected to have higher awareness—exhibited gaps in knowledge regarding micronutrients, obesity prevention, and reading nutrition labels. Another study by Singh and Kaur (2019) [14] found that awareness of balanced diet concepts was higher among urban students compared to rural students, reflecting the role of exposure and resources. These Indian studies underscore the influence of academic background, curriculum design, and socioeconomic context in shaping nutrition awareness.

3. Stream-Wise Comparisons of Students
a. Home Science Students
Home Science students are typically trained in food and nutrition, human physiology, community health, and applied dietetics. Consequently, their knowledge and awareness tend to be significantly higher compared to other groups (Verma *et al.*, 2018) [16]. They are more likely to correctly identify nutrient functions, recommend balanced meals, and interpret dietary guidelines. However, literature also suggests that while their theoretical knowledge is strong, lifestyle behaviors may still be influenced by peer pressure, convenience, and food environment (Choudhury & Rathi, 2021) [3].

b. Science Students without Home Science
Science students without Home Science exposure (e.g., those in Physics, Chemistry, Mathematics, or general Biology) possess partial nutrition awareness, mostly linked to biological concepts but not dietetics or applied nutrition. Gan *et al.* (2011) [6] found that biology students could identify macronutrients and basic physiology but lacked applied knowledge regarding recommended dietary allowances or meal planning. In India, Kavitha and Rao (2017) [9] reported similar findings, noting that while science students were better than arts students, they did not match Home Science students in comprehensive understanding.

c. Arts Students without Home Science
Arts students typically receive little formal nutrition education unless they take elective subjects. Studies have shown that this group relies heavily on mass media, advertisements, and social networks for dietary information, leading to misconceptions (Deshpande *et al.*, 2020) [5]. For instance, many arts students equated "dieting" with severe calorie restriction rather than balanced eating. In Singh and Kaur's (2019) [14] study, arts students displayed the lowest scores on nutrition awareness scales, particularly regarding micronutrients and long-term health outcomes.

4. Gaps Identified in Literature
The review reveals three critical gaps:
- Lack of comparative Indian studies that systematically analyze differences in awareness among Home Science, Science, and Arts students within the same institution.
- Insufficient focus on misconceptions across academic streams, especially regarding modern dietary trends like fast foods, supplements, and weight-loss diets.
- Limited integration of nutrition education in non-Home Science curricula, despite clear evidence of low awareness in those groups.

5. Rationale for the Present Study
Considering the identified gaps, the present research seeks to compare nutrition awareness among Home Science, Science, and Arts students, providing empirical evidence from the Indian context. It aims to highlight academic background as a determinant of nutrition knowledge and to recommend curriculum integration strategies for non-Home Science students. By addressing these gaps, the study hopes to contribute to policy and educational reforms in higher education.

Methodology
Research Design
This study adopted a **cross-sectional comparative design** to assess and compare the levels of nutrition awareness among students from different academic backgrounds.

Study Area and Population
The study was conducted in Jai Prakash University, Chapra, Bihar, India, encompassing undergraduate students enrolled in Home Science, Science (without Home Science), and Arts (without Home Science) disciplines.

Sampling Technique and Sample Size
A stratified random sampling technique was employed to ensure equal representation of students from each academic stream. The final sample size comprised 150 participants:
- 50 Home Science students
- 50 Science (without Home Science) students
- 50 Arts (without Home Science) students

Inclusion Criteria
- Undergraduate students aged 18-25 years
- Enrolled full-time in Home Science, Science, or Arts streams
- Willing to participate and provide informed consent

Exclusion Criteria
- Students enrolled in nutrition/dietetics electives outside Home Science
- Postgraduate students

Research Tool
A **structured questionnaire** was developed, comprising four sections:
1. Demographic information (age, gender, year of study, residence).
2. Nutrition knowledge (20 multiple-choice questions on nutrients, food groups, balanced diet, diet-disease link).
3. Nutrition awareness and attitude (10 Likert-scale items on food choices, diet importance, misconceptions)
4. Dietary practices (self-reported behaviors such as frequency of fruit/vegetable intake, junk food consumption, meal skipping).

Data Collection
Data were collected over two months through in-class administration of questionnaires, with anonymity ensured.

Data Analysis
Data were entered into SPSS (v25).

Descriptive statistics: mean, percentage, standard deviation.
Inferential statistics:
- ANOVA for comparison of mean scores across streams.
- Chi-square test for categorical variables.
- Post-hoc Tukey's test for inter-group differences.
- A significance level of $p < 0.05$ was adopted.

Results
Demographic Profile of Respondents
Out of 150 respondents, 64% were from urban areas and 36% were from rural areas with mean age of 20.3 years. Distribution across academic streams was balanced.

Table 1: Demographic Characteristics of Participants (N = 150)

Characteristic	Home Science (n=50)	Science (n=50)	Arts (n=50)	Total (N=150)
Mean Age (yrs)	20.4 ± 1.2	20.1 ± 1.4	20.3 ± 1.5	20.3 ± 1.4
Urban (%)	68%	64%	60%	64%
Rural (%)	32%	36%	40%	36%

Nutrition Awareness Scores

Table 2: Mean Nutrition Awareness Scores by Academic Stream

Stream	Mean Score (%)	Standard Deviation
Home Science	78.4	8.2
Science	62.7	9.4
Arts	48.3	10.1

- ANOVA revealed significant differences (F = 112.4, p < 0.001). Post-hoc Tukey's test confirmed:
- Home Science > Science (p < 0.001)
- Science > Arts (p < 0.01)
- Home Science > Arts (p < 0.001)

Table 3: Sources of Nutrition Information

Source	Home Science (%)	Science (%)	Arts (%)
Textbooks / Lectures	78	20	12
Internet / Health Courses	15	56	24
Media / Peers	7	24	64

Table 4: Dietary Practices Across Groups

Dietary Practice	Home Science (%)	Science (%)	Arts (%)
Daily Fruits & Vegetables	71	48	35
Balanced Meals	65	52	40
Frequent Fast Food (>3/week)	29	46	58

Dietary Practices
- 71% of Home Science students reported daily fruit intake vs. 48% Science and 35% Arts.
- Junk food consumption ≥3 times/week: Arts 58%, Science 46%, Home Science 29%.
- Meal skipping was highest in Arts students (42%).

Misconceptions Identified
- 62% of Arts students believed "dieting means avoiding rice/roti."
- 45% of Science students incorrectly identified fats as "always harmful."
- Only 12% of Home Science students had similar misconceptions.

Discussion
The study clearly demonstrates that academic background significantly influences nutrition awareness among university students. Home Science students displayed the highest awareness, consistent with their curriculum emphasis on food and nutrition. This aligns with findings by Verma *et al*. (2018) [16] and Ibitoye *et al*. (2019) [8], who also reported superior knowledge among Home Science/Home Economics students.

Science students without Home Science exposure demonstrated moderate awareness. Their strength lay in understanding basic biological functions of nutrients but they lacked applied knowledge such as diet planning or interpreting nutrition labels, echoing findings by Gan *et al*. (2011) [6].

Arts students exhibited the lowest awareness, with multiple misconceptions and unhealthy practices. Reliance on social media and peers as primary information sources likely contributed to this pattern, consistent with Deshpande *et al*. (2020) [5].

The dietary practice results further highlights this academic disparity. Home Science students were more likely to consume fruits and vegetables daily, while Arts students reported the highest frequency of junk food consumption and meal skipping. This reinforces the link between knowledge, awareness, and practice.

Another notable finding is the widespread reliance on media for nutrition information. Students frequently reported using social media platforms as their primary source, which often propagated misinformation. This aligns with Yahia *et al*. (2016) [18], who highlighted similar patterns among international students.

Implications: The results underscore the importance of integrating basic nutrition education into Science and Arts curricula. Simple modules on balanced diets, label reading, and lifestyle disease prevention could bridge the gap. Universities could also implement workshops, nutrition awareness campaigns, and peer-education models targeting non-Home Science students.

Conclusion and Recommendations
This study highlights significant differences in nutrition awareness among students from different academic backgrounds. Home Science students possessed the highest awareness, Science students moderate, and Arts students the lowest. These findings emphasize that while specialized curricula enhance awareness, students from non-Home Science backgrounds remain vulnerable to misconceptions and unhealthy practices.

Recommendations
- **Curriculum Integration:** Nutrition modules should be introduced in non-Home Science streams.
- **Awareness Programs:** Workshops, seminars, and campaigns should be organized targeting Arts and Science students.
- **Use of Media:** Social media and digital platforms should be utilized for disseminating accurate nutrition information
- **Peer Learning:** Home Science students can act as peer educators for cross-stream knowledge sharing.
- **Policy Implications:** Universities and higher education councils should mandate basic nutrition education across disciplines to promote public health.

Also detailed demographic study can be conducted to understand the background (rural or urban) influence on the nutrition knowledge, attitude and practices of students of different educational streams.

By adopting these strategies, universities can foster a culture of health literacy that equips all students—regardless of academic background—with the knowledge to make healthier dietary choices.

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