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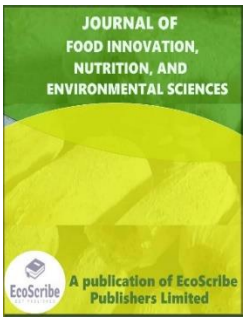

ORIGINAL RESEARCH ARTICLE

Influence of Rising Food Prices on Dietary Pattern of Late Adolescents and Young Adults in Southwest Nigeria

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ABSTRACT

Rising food prices in Nigeria pose a major challenge to adequate nutrition among late adolescents and young adults, increasing the risk of poor dietary intake and malnutrition. This study assessed the influence of rising food prices on dietary patterns among late adolescents and young adults in Southwest Nigeria. A cross-sectional descriptive study was conducted among 400 participants selected through multistage sampling. Data were collected using a pretested semi-structured interviewer-administered questionnaire assessing sociodemographic characteristics, anthropometric measurements, perceived family economic status, perceptions of food price increases, and food frequency patterns. Descriptive and inferential statistics were applied at $p < 0.05$. The mean age of respondents was 17.5 ± 1.73 years, and 58.2% were female. The mean monthly allowance was ₦59,637 ± ₦33,448. A high proportion of respondents were underweight (41%), while fewer were overweight or obese. Most participants (87.3%) perceived their family economic situation as difficult, and 81.6% reported noticeable increases in the prices of basic food items. Food frequency findings revealed reduced frequent consumption of nutrient-rich foods such as fruits and vegetables, milk and dairy products, and meat and fish. Rising food prices were significantly associated with lower frequent consumption of core food groups ($p = 0.0026$). A significant association was also observed with increased intake of pastries and confectioneries ($p = 0.0289$), while no significant association was found with sugar-sweetened beverage intake ($p = 0.101$). In conclusion, rising food prices negatively influence dietary patterns, thereby increasing the risk of malnutrition. Targeted nutrition-sensitive interventions and economic policies are recommended.

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1. INTRODUCTION

Rising food prices have become a major public health concern globally due to their effect on food access, dietary quality, and nutritional wellbeing, particularly in low- and middle-income countries(Ameye et al., 2021). Increasing costs of staple and nutrient-rich foods have been linked with reduced dietary diversity and lower consumption of healthy foods among vulnerable populations (Headey & Ruel, 2023; Miller et al., 2025). As household purchasing power declines, many families are compelled to shift from nutrient-dense foods to cheaper, energy-dense alternatives that are often poor in essential nutrients (Leung et al., 2022). Studies from developing countries indicates that periods of food inflation are associated with decreased intake of fruits, vegetables, and animal source foods among adolescents and young adults (Kera et al., 2024; Tukun, 2020; Ekubagewargies et al., 2026). These dietary adjustments may predispose young people to both micronutrient deficiencies and unhealthy weight outcomes.

Economic instability, inflation, and disruptions in food systems have further intensified concerns regarding food affordability and nutrition security. In many countries, including Nigeria, persistent increases in food prices have significantly affected household food purchasing patterns and meal quality (Headey & Ruel, 2023). Adolescents and young adults are particularly susceptible to these changes because they are transitioning toward greater independence in food related decision making while often relying on limited financial resources (Jurado-Gonzalez et al., 2025; Ukegbu et al., 2019). This developmental stage is characterized by rapid physical growth, hormonal changes, and cognitive maturation, all of which increase nutritional requirements (Amadi & China, 2024; Gabriel et al., 2024). Inadequate nutrient intake during this period may impair growth, learning capacity, immune function, and long-term health outcomes (Morales et al., 2024). Previous studies have also shown that dietary habits established during adolescence and early adulthood frequently persist into later life and contribute to the future risk of non-communicable diseases (Gabriel et al., 2024).

University students represent a population group that may be disproportionately affected by rising food costs due to financial constraints, demanding academic schedules, and unhealthy food environments. Studies conducted among university students in Nigeria and other settings have reported frequent meal skipping, irregular eating patterns, and low dietary diversity (Adu et al., 2019; Almoraie et al., 2024; Amadi & China, 2024). Financial limitations often influence food choices, leading students to prioritise affordability and convenience over nutritional quality (Ogundele et al., 2023). Consequently, inexpensive fast foods and processed snacks are commonly consumed in place of balanced meals containing fruits, vegetables, and high-quality protein sources (Leung et al., 2022; Ogundele & Adoga, 2024). Academic workload and time pressure may also reduce opportunities for healthy meal preparation and regular eating practices (Amadi & China, 2024). In addition, insufficient nutrition knowledge among some students may contribute to poor dietary decisions and unhealthy eating behaviours (Olatona et al., 2023).

Socioeconomic disadvantage remains an important determinant of dietary behaviour among young adults. Studies have demonstrated that limited income is associated with reduced consumption of fruits and vegetables, increased dependence on low-cost calorie-dense foods, and irregular meal patterns (Abubakar et al., 2023; Solaja et al., 2025). These coping strategies may temporarily reduce food expenditure but often compromise diet quality and nutritional adequacy (Hallit et al., 2026). The influence of food prices on dietary behaviour is, however, multifaceted and may also be shaped by taste preferences, convenience, peer influence, and the surrounding food environment (Aboueldahab et al., 2026; Alkandari et al., 2023; Ogundele & Adoga, 2024). This interaction of economic and behavioural factors contributes to the complex dietary patterns observed among university students.

Nigeria is currently experiencing a nutritional transition characterized by the coexistence of undernutrition and overnutrition among adolescents and young adults (Oluwasanu et al., 2023). While some young people experience inadequate food intake and micronutrient deficiencies, others increasingly consume highly processed foods associated with overweight and obesity. This double burden of malnutrition underscores the need to assess not only dietary intake but also the broader factors influencing food choices among young populations. Despite growing concerns regarding food inflation in Nigeria, there is limited evidence directly examining how rising food prices affect the dietary patterns of late adolescents and young adults attending tertiary institutions. Therefore, this study assessed the influence of rising food prices on the dietary patterns of late adolescents and young adults in tertiary institutions in Southwestern Nigeria. Findings from the study may provide evidence to support nutrition-sensitive interventions and policies aimed at improving dietary behaviour and nutritional outcomes among university students.

2. METHODOLOGY

2.1 Study design and setting

A cross-sectional descriptive design was employed to examine the influence of rising food prices on the dietary patterns of Late adolescents and young adults in Southwest Nigeria. Data collection was conducted between August and December 2024 across four universities: Bowen University, University of Lagos, University of Ibadan, and Obafemi Awolowo University. These institutions were purposively selected to represent both public and private higher education settings in the region.

2.2 Study population

The study population comprised late adolescents and young adults aged 15–21 years enrolled in 100–500 academic

levels across selected universities in Southwest Nigeria. This age range includes older adolescents and emerging adults who are in a critical developmental transition characterized by increasing independence in dietary choices, financial autonomy, and heightened susceptibility to environmental and economic influences such as rising food prices. Although the World Health Organization defines adolescents as individuals aged 10–19 years (World Health Organization, 2007), the inclusion of participants up to 21 years was justified because university populations in Nigeria often include individuals within this extended age range who share similar living conditions, food environments, and economic constraints. Students of all genders and socioeconomic backgrounds were eligible to participate. The minimum sample size (n = 400) was determined using Cochran's formula for proportions, with adjustment for non-response. Using a prevalence (p) of 0.50 due to the absence of a comparable prevalence estimate in the study area, a 95% confidence level (Z = 1.96), and a precision level (d) of 0.05, the sample size was calculated. This yielded a minimum sample size of 384 participants. After adjusting for a possible non-response rate, the final sample size was increased to 400 respondents.

2.3 Sampling technique

A multistage sampling technique was employed. Stage 1 (Selection of Institutions): Four universities were purposively selected to ensure representation of both public and private institutions. Stage 2 (Proportional Allocation): The total sample size (n = 400) was proportionally allocated to each university based on student population size (**Table 1**). Stage 3 (Selection of Faculties): Within each university, three faculties were randomly selected using simple random sampling from the list of available faculties. Stage 4 (Selection of Participants): Systematic random sampling was used to select students within each selected faculty. The first respondent was selected randomly, and every kth student thereafter was recruited until the required sample size was achieved. Students were approached in lecture halls and common areas, and those who met the inclusion criteria and consented were enrolled.

Prior to data collection, institutional permissions were obtained, and student representatives were trained to facilitate recruitment and participant engagement.

Table 1. Proportional allocation of a sample size to the study population.

University	Population	Proportion	Calculated sample size
Bowen University	5000	5000÷116527=0.043	0.043×400=17
Obafemi Awolowo University	26000	26000÷116527=0.223	0.223×400=89
University of Ibadan	41743	41743÷116527=0.358	0.358×400=143
University of Lagos	43784	43784÷116527=0.376	0.376×400=150
Total	116,527		399 rounds to 400

2.4 Data collection instruments and procedures

Data was collected using a pre-tested, semi-structured interviewer-administered questionnaire, supplemented by anthropometric measurements. The tool comprised four sections: Section A consisted of socio-demographic and anthropometric data (age, sex, academic level, family size, parental occupation, etc.) and Anthropometric measures using Body mass index (BMI). Section B: Perceptions of family economic situation. Section C: Perceptions of the effect of rising food prices. lastly, a Food Frequency Questionnaire (FFQ) in Section D to measure the Dietary intake assessment using a Food Frequency Questionnaire (FFQ). The FFQ was adapted from previously validated dietary assessment tools used in similar populations and modified to reflect commonly consumed foods in Nigeria (Bigman et al; 2024). It assessed the frequency of consumption of major food groups (daily, 4–6 times/week, <3 times/week, never).

2.5 Measurement of perception of rising food prices

Perception of rising food prices was assessed using a structured scale comprising five items that evaluated respondents' views on changes in food costs and their impact on food access. The items included statements such as: The price of basic food items has increased in recent months, rising food prices affect my ability to purchase adequate food, Healthy foods are becoming less affordable, my household reduces food quantity due to increased prices and Food price increases influence my food choices. Responses were measured on a 3-point Likert scale: Agree (2), Neutral (1), and Disagree (0). A composite perception score was computed by summing responses across all items, with possible scores ranging from 0 to 10. For analytical purposes, the scores were categorized as follows: High perception of rising food prices (Agree): scores ≥6 and Low perception of rising food prices (Disagree): scores <6. Due to the small number of respondents in the neutral category, responses were collapsed into Agree and Disagree categories for inferential analysis.

2.6 Anthropometric measurements

Body weight was measured using a calibrated digital weighing scale to the nearest 0.1 kg, with participants wearing light clothing and no shoes. Height was measured using a portable stadiometer to the nearest 0.1 cm, with participants standing upright against a flat surface. Body Mass Index (BMI) was calculated as weight (kg) divided by height squared (m^2). Nutritional status was classified using the World Health Organization (WHO) BMI-for-age reference standards for adolescents (WHO, 2007): Underweight: BMI < 18.5 kg/m^2, Normal weight: BMI 18.5–24.9 kg/m^2 Overweight: BMI 25.0–29.9 kg/m^2 and Obese: BMI ≥ 30.0 kg/m^2. All instruments were calibrated daily before use. Participants aged 20–21 years were classified using standard adult BMI cut-offs (Centers for Disease Control and Prevention, 2024)

2.7 Validity and reliability of instrument

Content validity of the questionnaire was established through expert review by three specialists in public health nutrition. Pretesting was conducted among 30 students from a university outside the study area to assess clarity, relevance, and comprehensibility. Reliability of the instrument was assessed using Cronbach's alpha, yielding a coefficient of ≥0.80 for key sections, indicating acceptable internal consistency.

2.8 Quality assurance

Six research assistants who were qualified dietitians participated in data collection. Prior to the study, all research assistants underwent standardization training for anthropometric measurement techniques to minimize inter-observer variability. The training included repeated measurements on volunteer subjects and calibration checks to ensure consistency and accuracy.

To further ensure reliability, duplicate measurements were taken for a subset of participants, and the average values were recorded. The pretested data was excluded from the final analysis to avoid error in data analysis and interpretation. Daily supervision and on-site data verification were conducted to identify and correct inconsistencies and missing data.

2.9 Ethical considerations

The Research Committee of the Bowen University Teaching Board granted ethical approval, designated by approval number BUTH/REC-1186, and the school administration provided their consent. All participants provided informed consent, and parental consent was obtained for minors. Confidentiality was ensured during the study.

3. RESULTS

3.1 Body Mass Index (BMI) categories among respondents.

The results (**Figure 1**) show that a substantial proportion of participants were underweight, while a smaller proportion fell within normal, overweight, and obese categories. The results indicate that 46% of respondents were underweight, while 39% had normal weight. A smaller proportion were overweight (10%) and obese (0.8%). This distribution suggests the presence of both undernutrition and overnutrition within the study population

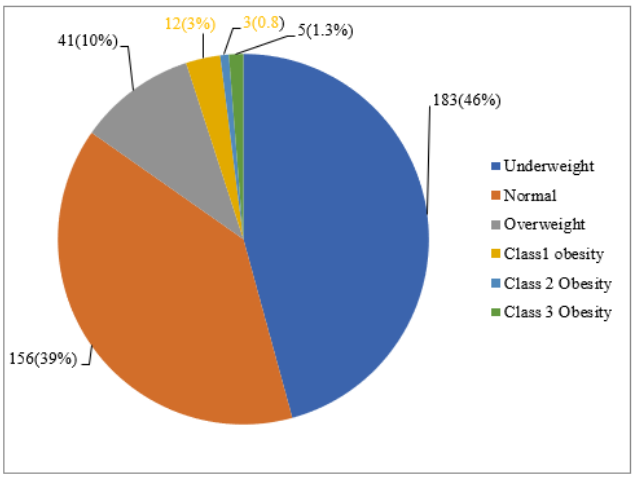

Fig.1. Body Mass Index classification of respondents

3.2 Perceived Economic Situation

Distribution of respondents according to perceived family economic situation, categorized as comfortable, neutral, or difficult based on self-reported assessment. Most respondents perceived their family economic situation as difficult, while a smaller proportion reported comfortable economic conditions (**Figure 2**). This reflects the financial constraints experienced by a large segment of the study population.

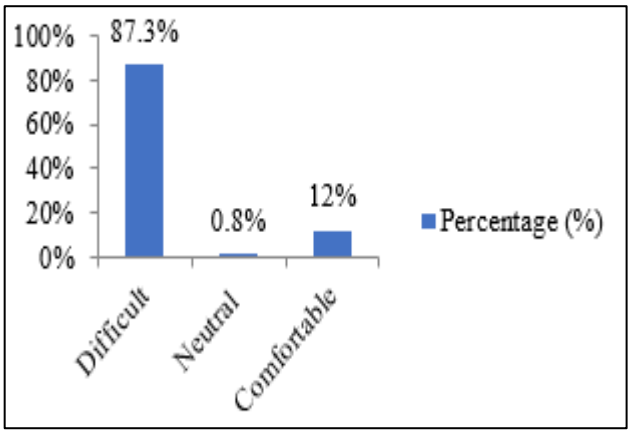

Fig.2: Illustrates respondents' perception of their family's economic situation

3.3 Perception of adolescent to rising food prices

Distribution of adolescents' perception of rising food prices based on composite perception scores categorized into agree, neutral, and disagree (**Figure 3**). Composite perception scores were derived from multiple items assessing food affordability and accessibility. Most respondents agreed that food prices had increased significantly, while fewer respondents expressed neutrality or disagreement. This indicates widespread awareness of rising food costs among the study population.

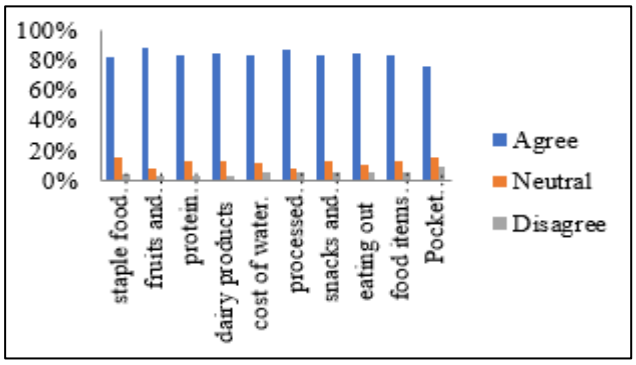

Fig.3: Perception of adolescent to rising food prices

3.4 Food frequency pattern showing shift in adolescent consumption

As shown in **Table 2**, results show that staple foods were consumed frequently, with 65% reporting daily intake. In contrast, consumption of fruits and vegetables was lower, with only 25% reporting daily intake and 35% consuming them less than three times per week. Similarly, milk and dairy products had low daily consumption (20%) and a high proportion of infrequent consumption (40%). These findings suggest reduced intake of nutrient-rich foods among respondents.
modification and maintaining the functional integrity of the final product.

3.5 Adolescent dietary pattern and rise in food prices

Dietary consumption patterns were categorized into 'frequent' and 'infrequent' based on reported food frequency. Consumption of a food group ≥4 times per week (including daily intake) was classified as 'frequent', while consumption <4 times per week was classified as 'infrequent'. For the composite food group category (cereals, roots and tubers, legumes, fruits and vegetables, milk and dairy products, and meat and fish), a composite score was generated by aggregating individual food group frequencies, and respondents were classified based on their overall consumption pattern. Same respondents were classified across all categories.

Chi-square tests of independence were used to assess the relationship between perception of rising food prices and dietary consumption patterns. A statistically significant association was observed between perception of rising food prices and consumption of core food groups ($\chi^2 = 9.091$, $p = 0.0026$). A significant association was also found for pastries and confectioneries ($\chi^2 = 4.77$, $p = 0.0289$). However, no significant association was observed for sugar-sweetened beverages ($\chi^2 = 2.68$, $p = 0.101$). These findings indicate that perception of rising food prices is associated with changes in dietary patterns, particularly reduced frequent consumption of core food groups and increased consumption of certain processed foods.

Table 2. Food frequency pattern showing shift in Adolescent consumption

Food Group	Daily (%)	4–6times/week (%)	<3times/week (%)	Never (%)
Staples (Rice, Pasta, Bread)	65	25	8	2
Tubers (Yam, Cassava, Potatoes	55	30	12	3
Legumes	40	35	20	5
Fruits and Vegetables	25	30	35	10
Milk and Dairy Products	20	25	40	15
Meat and Fish	35	25	30	15
Sugar-Sweetened Beverages	45	35	15	5
Pastries and Confectioneries	45	30	20	5

4.DISCUSSION

The findings of this study demonstrate a statistically significant association between perceived rising food prices and dietary consumption patterns among late adolescents and young adults in Southwest Nigeria. As shown in **Table 3** (Core Food Groups), respondents who perceived rising food prices had a higher proportion of infrequent consumption of core food groups compared to those who did not. This association was statistically significant ($\chi^2 = 9.091$, $p = 0.0026$), indicating a meaningful relationship between food price perception and dietary behaviour. Evidence from Nigeria shows that food price inflation is associated with reduced dietary quality and limited access to nutrient-rich foods(Akerele et al., 2024; Fajobi et al., 2024). Studies across low- and middle-income countries further confirm that increases in food prices reduce dietary adequacy among adolescents (Gabriel et al., 2024; Olumakaiye et al., 2026).

However, the present study demonstrates association rather than causation due to its cross-sectional design.

Table 3. Relationship between perceived rising food prices (composite score) and dietary consumption patterns among adolescents

Food Groups	Perception of rising food price	Infrequent Pattern	Frequent Pattern	Total	χ^2	df	p-value
Core Food groups (Composite Index)	Agree (n=385)	270	115	385	9.091	1	0.0026
	Disagree (n=15)	5	10	15			
	Total	275	125	400			
Consumption of sugar sweetened beverages (SSB)	Perception of rising food price	Infrequent Pattern	Frequent Pattern	Total			
	Agree (n=385)	260	125	385	2.68	1	0.101
	Disagree (n=15)	7	8	15			
	Total	267	133	400			
Consumption of pastries and confectioneries	Perception of rising food price	Infrequent Pattern	Frequent Pattern	Total			
	Agree (n=385)	255	130	385	4.77	1	0.0289
	Disagree (n=15)	6	9	15			
	Total	261	139	400			

The food consumption patterns presented in **Table 2** provide important context for interpreting this association. Daily intake was highest for staple foods such as rice, pasta, and bread (65%), while consumption of fruits and vegetables (25%), milk and dairy products (20%), and meat and fish (35%) were comparatively lower. These patterns suggest less frequent consumption of some nutrient-rich food groups. Studies among Nigerian university students indicate that affordability, convenience, and food availability strongly influence dietary choices(Ogundele & Adoga, 2024; Solaja et al., 2025). Evidence also shows that fruit and vegetable intake among Nigerian students is often below recommended levels due to cost and accessibility constraints (Fajobi et al., 2024; Olatona et al., 2023). Since this study assessed frequency rather than portion size or nutrient intake, the findings should be interpreted as indicative of consumption patterns rather than definitive evidence of dietary inadequacy.

The nutritional status findings shown in **Figure 1** and **Table 1** indicate that 41.0% of respondents were underweight, while 8.8% were overweight and 0.8% were obese. This distribution reflects the coexistence of undernutrition and overnutrition within the study population. Similar findings have been reported in Nigerian adolescents, where both forms of malnutrition occur within the same population (Adeomi, 2022; Oluwasanu et al., 2023). However, the relatively high prevalence of underweight should not be attributed solely to food price increases. Nutritional status is influenced by multiple factors, including dietary intake, physical activity, stress, and health conditions. Systematic reviews highlight variability in adolescent nutritional outcomes across Nigeria, which supports cautious interpretation (Abubakar et al., 2024a; Gabriel et al., 2024). Therefore, the findings in **Figure 1** should be interpreted within a broader socioeconomic and behavioural context.

The perception of rising food prices illustrated in **Figure 3** shows that a large proportion of respondents agreed that food prices had increased. This aligns with national data indicating a 39.93% year-on-year increase in food prices in Nigeria in November 2024 (National Bureau of Statistics, 2024). Rising food prices are known to influence food purchasing decisions and dietary behaviour in resource-

constrained settings (Akerele et al., 2024; Olumakaiye et al., 2026). However, the measure used in this study reflects perception rather than actual expenditure or price tracking. Therefore, **Figure 3** represents subjective economic experience rather than objective economic exposure.

The association observed for pastries and confectioneries in **Table 3** ($\chi^2 = 4.77$, $p = 0.0289$) indicates that consumption patterns for this food group differed significantly based on perception of rising food prices. This suggests that pastries and confectioneries may remain part of students' diets even during economic constraints. Evidence indicates that students frequently consume snacks due to convenience and availability (Amadi & China, 2024; Park et al., 2023). Studies also show that food price increases is associated with shifts toward more accessible food options, although this study did not directly measure substitution behaviour (Abubakar et al., 2024; Akerele et al., 2024).

In contrast, **Table 3** (Sugar-Sweetened Beverages) shows no statistically significant association between perception of rising food prices and SSB consumption ($p = 0.101$). This suggests that SSB intake may not be strongly influenced by food price perception in this study population. Research indicates that food choice among adolescents is influenced by factors such as taste, availability, and social environment (Mukanu et al., 2022). However, these factors were not directly measured in this study and are used as contextual explanations and not interpreted as findings.

The perceived economic situation shown in **Figure 2** indicates that a large proportion of respondents reported financial difficulty. This reflects broader economic conditions in Nigeria, where inflation has reduced purchasing power (NBS, 2024). Studies show that economic hardship is associated with reduced dietary diversity and poor nutrition outcomes (Adeomi, 2022; Fajobi et al., 2024). Although, Affordability depends on multiple contextual factors, including food prices and cost of living (Mekonnen et al., 2023) and might not be directly influenced by the reported monthly allowance.

Overall, the findings from **Figures 1–3 and Tables 1–3** suggest that perceived rising food prices are associated with dietary patterns among late adolescents and young adults. However, these relationships are influenced by multiple interacting factors, including economic conditions, lifestyle behaviours, and food environment. Evidence supports the role of food prices in shaping dietary outcomes but also emphasizes the importance of behavioural and environmental influences(Akerele et al., 2024; Gabriel et al., 2024).

CONCLUSION

This study presents compelling evidence that perceived rises in food costs substantially influence late adolescents and young adult's dietary habits in Southwest Nigeria, diminishing the consumption frequency of healthy food groups and promoting a transition towards more affordable, nutrient-deficient alternatives. These findings augment the existing comprehension of the influence of financial resources on the food habits of adolescents in low- and middle-income nations. They also demonstrate how inflation alters dietary choices. They emphasize the necessity of governmental measures, including subsidized school feeding initiatives, food subsidies aimed at students, and market interventions to stabilize the pricing of nutrient-dense foods. Policies aimed at improving access to affordable and nutritious foods in university settings may support healthier dietary practices. Future research should use longitudinal designs and include direct measures of food expenditure and dietary intake to better understand causal relationships.

CONFLICT OF INTEREST

All authors declare that they do not have any conflicts of interest that could have appeared to influence the work reported in this paper.

DATA AVAILABILITY

The data used to support the findings of this study are available upon reasonable request from the corresponding author.

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