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Dietary Fast-food Habits Among University Students: A Systematic Review

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ABSTRACT

Background: Fast food consumption has become a prevalent dietary habit, popular across various age groups globally, particularly among university students. Several factors contribute to their preference towards fast food, particularly its convenience and taste. This study aims to provide an overview of the association between sociodemographic background and dietary habits, the factors influencing fast food consumption, and fast-food dietary habits related to fast food intake.
Methods: Following the PRISMA guidelines, searches were conducted across five databases: Springer Link, ProQuest, Scopus, Taylor & Francis, and Clinical Key. Articles were identified and screened using the critical appraisal tools developed by the Joanna Briggs Institute and evaluated for eligibility as shown in the PRISMA chart. The primary focus was the association between sociodemographic background and dietary habits, particularly fast-food consumption.
Results: A total of 21 articles were appraised and included in this review. Following the screening process, 21 articles were analysed to identify patterns and trends within the scope of the study. The main themes identified through the search include dietary habits related to fast food intake, the association between sociodemographic background and fast-food consumption among university students, and the dietary habits of students. The articles systematically compared the relevant patterns and trends accordingly.
Conclusion: This review is crucial for understanding current trends in fast food consumption and identifying initiatives to reduce fast food intake. The findings may be applicable in Malaysia to enhance awareness among university students.

Keywords: Fast food; Dietary consumption; Students

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INTRODUCTION

Fast food consumption has become a trendy and popular dietary habit among various age groups globally, especially among young adults, with university students as the main consumers. Fast food has become one of the most popular meal options or "daily main course" among students (1). Another study among 303 university students in Brunei highlighted that almost 82.2% had a habit of snacking regularly and 67% consumed fried food at least 3 to 5 times per week. Only 23.4% and 9.2% of participants consumed vegetables and fruits daily, respectively, which is relatively low (3).

Meanwhile, a study among undergraduates in Malaysia showed that 61.5% of 165 respondents strongly agreed, and 32.8% agreed, that they enjoy eating fast food (3). Another research conducted in northern Malaysia, mentioned that about 32.7% of 364 students consumed fast food 2 to 3 times per month (4). This statistic shows the increasing trend of fast-food consumption among university students, which has become a habit among them.

Several factors contribute to fast food consumption among students, including time, as fast food provides fast service for meals. Financial resources, price, availability, and taste also encourage fast food consumption. Additionally, the operators of fast-food restaurants make enticing offers to students, such as vouchers or student discounts, which encourages them to buy fast food even though their primary goal is to outbid their competitors.

Apart from that, regular fast-food consumption combined with poor dietary control can lead to significant health issues, such as weight gain, obesity, and type 2 diabetes (1,4). Studies show a concerning prevalence of obesity among community members, with 21.3% of 145 undergraduate students classified as obese, and young Malays reportedly consuming more fast food compared to other ethnic groups (3). This study is done to systematically synthesize, review, and analyse dietary habits related to fast food intake, the association between sociodemographic background and fast-food consumption among university students, and the dietary habits of students.

METHODS

The search process was conducted from October to December 2023 using the following databases: ProQuest, Springer Link, Clinical Key, Scopus, and Taylor & Francis. These databases were selected for their diverse range of sources and access to full-text articles, aiming to identify gaps in existing research, particularly concerning dietary habits among undergraduate students. The critical appraisal tools and eligibility methods of the Joanna Briggs Institute (JBI) were thoroughly applied during the evaluation.

The inclusion criteria for the review include papers written in English, available as open-access publications, published between 2019 and 2024, and focused primarily on food, diet, and nutrition. The search for data was conducted using a combination of the following keywords: 'dietary', 'habit', 'pattern', 'fast food', 'student' and the Boolean operator 'AND' was applied. SNS designed the study, while AAB and SNS conducted the journal appraisal using the relevant Joanna Briggs Institute checklist, performed peer checking and developed the first draft. AAB conducted the database searches. AAB and SNS performed the study quality assessments and peer checking of the content. AAB prepared the manuscript, while SNS carried out critical revisions and finalised the manuscript.

RESULT

A total of 21 relevant literature topics were examined to understand the issues surrounding dietary habits among undergraduate students, as illustrated in **Figure 1** and Appendix A. Articles were excluded from the search for various reasons, including reports that could not be retrieved (n = 42,322), records excluded for not being research articles (n = 46,629), publications not written in English (n = 160), and studies not related to the fields of Nursing, Medicine, or Public Health (n = 20,954). Additionally, articles that did not focus on diet, food, nutrients, food intake, or eating behaviour among students (n = 48,065) were considered beyond the scope of the study and were therefore excluded.

Table 1 addressed the critical appraisals by SNS and AAB to affirm the validity and reliability of the selected papers using the critical appraisal tools of the JBI. A total of 21 studies were finalised, despite considering some issues that were not detrimental to the search. Through repeated and active readings, three main themes were identified: dietary habits related to fast food intake, the association between sociodemographic background and fast-food consumption among university students and the overall dietary habits of the students.

Figure 1: Systematic Search of the Literature

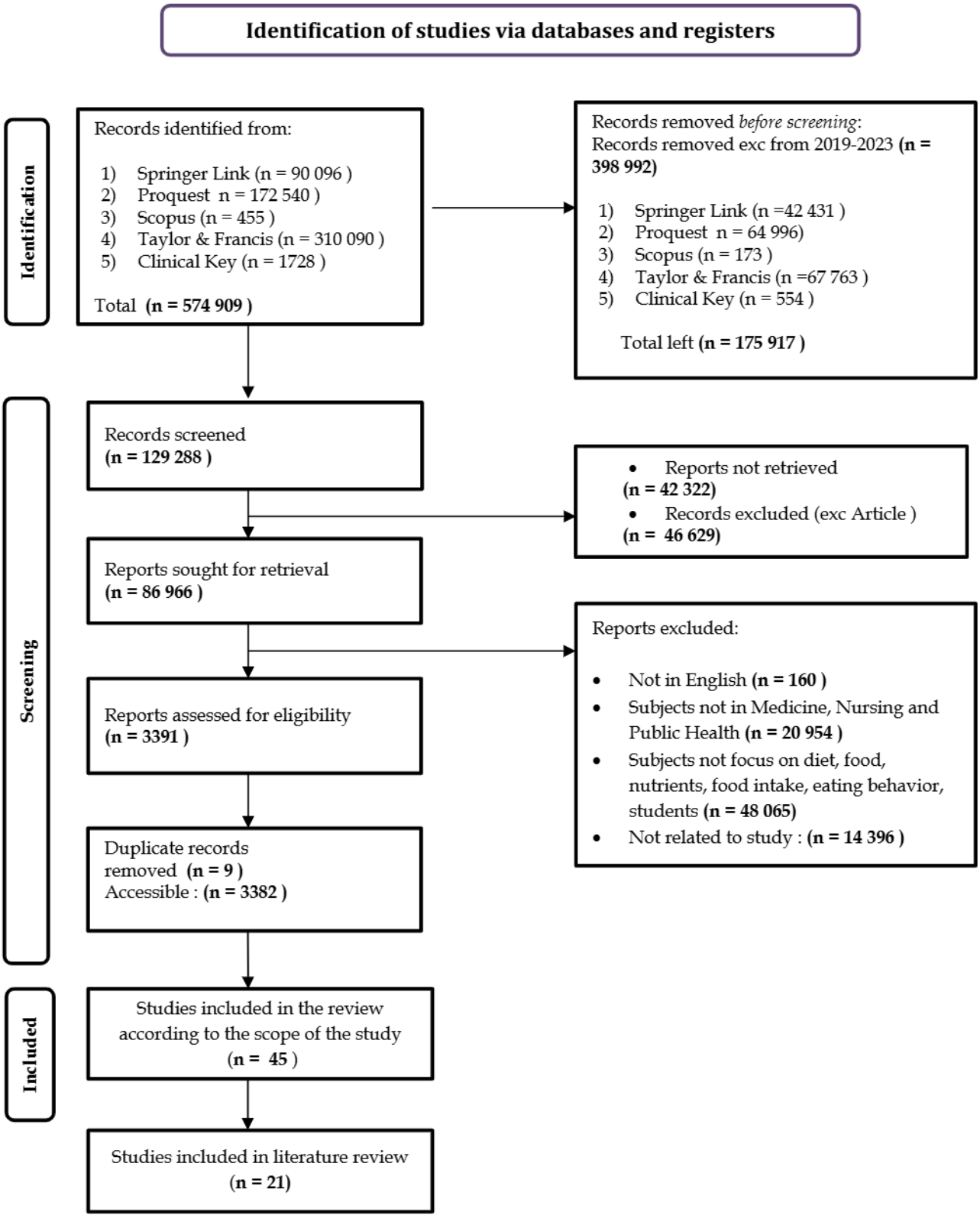

Table 1 (a): Risk of Bias (Cross-Sectional Studies)

No.	Cross-sectional	Sahasakul et al., (2023)	Sajjad et al., (2023)	Hatta et al., (2022)	Kalog et al., (2022)	Didarloo et al., (2022)	Eng et al., (2022)	Delicado-Soria et al., (2021)
Q1	Were the criteria for inclusion in the sample clearly defined?	N	Y	Y	Y	Y	Y	Y
Q2	Were the study subjects and the setting described in detail?	Y	Unclear	Y	Y	Y	Y	Y
Q3	Was the exposure measured in a valid and reliable way?	Y	Y	Y	Y	Y	Y	Y
Q4	Were objective, standard criteria used for measurement of the condition?	Y	Y	Y	Y	Y	Y	Y
Q5	Were confounding factors identified?	NA	NA	NA	NA	NA	Y	Y
Q6	Were strategies to deal with confounding factors stated?	NA	NA	NA	NA	NA	Y	Y
Q7	Were the outcomes measured in a valid and reliable way?	Y	Y	Y	Y	Unclear	Y	Y
Q8	Was appropriate statistical analysis used?	Y	Y	Y	Y	Y	Y	Y
Include / Exclude		Include	Include	Include	Include	Include	Include	Include
Issues arise		Inclusion criteria not provided	Numbers of college not provided		Indicator not mentioned clearly on fisher and chi square test	Assumption for MLR not reported clearly		

Note:
Y=Yes; N=No; NA: Not Available

Table 1 (b): Risk of Bias (Cross-Sectional Studies)

No.	Cross-sectional	Cheema et al., (2021)	Fonseca et al., (2021)	Marrero et al., (2021)	Mokhtar et al., (2020)	Mohammed et al., (2020)	Monteiro et al., (2019)	Shaban & Alkazemi, (2019)
Q1	Were the criteria for inclusion in the sample clearly defined?	Y	Y	Y	Y	Y	Y	Unclear
Q2	Were the study subjects and the setting described in detail?	Y	Y	Y	Y	Y	Y	Y
Q3	Was the exposure measured in a valid and reliable way?	Y	Y	Y	Y	Y	Y	Y
Q4	Were objective, standard criteria used for measurement of the condition?	Y	Y	Y	Y	Y	Y	Y
Q5	Were confounding factors identified?	Y	Y	Y	NA	NA	NA	NA
Q6	Were strategies to deal with confounding factors stated?	Y	Y	Y	NA	NA	NA	NA
Q7	Were the outcomes measured in a valid and reliable way?	Y	Y	Y	Y	Y	Y	Y
Q8	Was appropriate statistical analysis used?	Y	Y	Y	Y	Y	Y	Y
Include / Exclude		Include	Include	Include	Include	Include	Include	Include
Issues arise			Indicator not mentioned clearly on factor analysis and MLR		Inclusion criteria not mentioned clearly			Inclusion criteria not mentioned clearly

Note:
Y=Yes; N=No; NA: Not Available

Table 1 (c): Risk of Bias (Cross-Sectional Studies)

No.	Cross-sectional	Yousif et al., (2019)	Tok et al., (2018)	Abdullah et al., (2016)	Majeed, (2015)	AlFaris et al., (2015)
Q1	Were the criteria for inclusion in the sample clearly defined?	Y	Y	Y	Y	Y
Q2	Were the study subjects and the setting described in detail?	Y	Y	Y	Y	Y
Q3	Was the exposure measured in a valid and reliable way?	Y	Y	Y	Y	Y
Q4	Were objective, standard criteria used for measurement of the condition?	Y	Y	Y	Y	Y
Q5	Were confounding factors identified?	NA	NA	NA	NA	NA
Q6	Were strategies to deal with confounding factors stated?	NA	NA	NA	NA	NA
Q7	Were the outcomes measured in a valid and reliable way?	Y	Y	Y	Y	Y
Q8	Was appropriate statistical analysis used?	Y	Y	Y	Y	Y
Include / Exclude		Include	Include	Include	Include	Include
Issues arise			Incorrect method in presenting prevalence finding (using 95% CI)			

Note:
Y=Yes; N=No; NA: Not Available

Table 1 (d): Risk of Bias (Prevalence Studies)

No.	Cross-sectional	Halim et al., (2023)
Q1	Was the sample frame appropriate to address the target population?	Y
Q2	Were study participants sampled in an appropriate way?	Y
Q3	Was the sample size adequate?	Y
Q4	Were the study subjects and the setting described in detail?	Y
Q5	Was the data analysis conducted with sufficient coverage of the identified sample?	Y
Q6	Were valid methods used for the identification of the condition?	Y
Q7	Was the condition measured in a standard, reliable way for all participants?	Y
Q8	Was there appropriate statistical analysis?	Y
Q9	Was the response rate adequate, and if not, was the low response rate managed appropriately?	Y
Include / Exclude		Include
Issues arise		-

Note:
Y=Yes; N=No; NA: Not Available

Table 1 (e): Risk of Bias (Systematic Review)

No.	Cross-sectional	Ojo et al., (2023)
Q1	Is the review question clearly and explicitly stated?	Y
Q2	Were the inclusion criteria appropriate for the review question?	Y
Q3	Was the search strategy appropriate?	Y
Q4	Were the sources and resources used to search for studies adequate?	Y
Q5	Were the criteria for appraising studies appropriate?	Y
Q6	Was critical appraisal conducted by two or more reviewers independently?	Y
Q7	Were there methods to minimize errors in data extraction?	Y
Q8	Were the methods used to combine studies appropriate?	NA
Q9	Was the likelihood of publication bias assessed?	NA
Q10	Were recommendations for policy and/or practice supported by the reported data?	Y
Q 11	Were the specific directives for new research appropriate?	Y
Include / Exclude		Include
Issues arise		-

Note:
Y=Yes; N=No; NA: Not Available

DISCUSSION

Overall, there were 19 cross-sectional studies, one prevalence study and one systematic review. The sample size ranges from a minimum of 132 and a maximum of 2893. The populations studied are primarily university students, adolescents, and young adults. Most studies were conducted in Malaysia (5 studies), followed by Saudi Arabia (3 studies), and Brazil (2 studies). Other countries included Brunei, Ghana, Tunisia, Thailand, Kuwait, Qatar, Iran, Sudan, Puerto Rico, and a systematic review focusing on high-income countries. The tools used were structured questionnaires and some studies of anthropometric measurements. Three main themes were found through the search: dietary habits related to fast food intake, the association between sociodemographic background and fast-food consumption among university students, and the dietary habits of students.

Dietary Habits Related to Fast Food Intake

Fast food refers to food prepared and served quickly, typically using uniform ingredients that are processed and produced using standardised methods (4). This allows for consistency in taste, quality, and preparation time, making it a convenient option for quick service to customers.

Food consumption is important to fulfil the basic human needs, but it may affect the performance of the entire human body when it is overconsumed or underconsumed (5). Similarly, daily fast-food consumption can become a habit that will lead to non-communicable diseases such as diabetes, cardiovascular diseases, and obesity (6,7). Recent literature highlighted that university students have unacceptable dietary habits like skipping meals and consuming high amounts of high-fat energy food such as fast food, processed meat, and crunchy snacks (8,9). Thus, it is important to understand these issues to facilitate further studies in the local setting in the future.

Several studies conducted abroad, for example among the college students in Thailand, revealed that students in the fields of health social sciences and humanities consumed fast food such as pizza, hamburgers, and French fries at least once a week (7). Additionally, 8% of these students consumed bubble milk tea at least once a day. The consumption of various types of fast food by university students can have detrimental effects on their health and academic performance. Furthermore, a sedentary lifestyle combined with poor eating habits can result in vitamin and mineral deficiencies, which further impair immunity and raise the chances of contracting chronic illnesses including diabetes, heart disease, and obesity (7).

Table 1: Summary of Studies Included in the Review

No.	Author and year of study	Country	Study Design	Participants	Research Tool
1.	Hatta et al., (2022)	Malaysia	Cross-sectional study	Young adults aged 18 to 29 years old	Self-administered questionnaire
2.	Tok et al., (2018)	Brunei	Cross-sectional study	University students	Self-administered questionnaire
3.	Mokhtar et al., (2020)	Malaysia	Cross-sectional study	Undergraduate students	Self-administered questionnaire
4.	Halim et al., (2023)	Malaysia	Cross-sectional study	University students	Self-administered questionnaire
5.	Kalog et al., (2022)	Ghana	Cross-sectional study	University students	Self-administered questionnaire
6.	Delicado-Soria et al., (2021)	Tunisian	Cross-sectional study	University students	Self-administered questionnaire
7.	Sahasakul et al., (2023)	Thailand	Cross-sectional study	Undergraduate students	Self-administered questionnaire
8.	Majeed, (2015)	Saudi Arabia	Cross-sectional study	College students	Self-administered questionnaire
9.	Mohammed et al., (2020)	Saudi Arabia	Cross-sectional study	University students	Self-administered questionnaire
10.	Monteiro et al., (2019)	Brazil	Cross-sectional epidemiological study	Undergraduate students	Self-administered questionnaire
11.	Eng et al., (2022)	Malaysia	Cross-sectional study	Adults	Face-to-face interviews with structured questionnaire
12.	Shaban & Alkazemi, (2019)	Kuwait	Cross-sectional study	University students	Self-administered questionnaire
13.	AlFaris et al., (2015)	Saudi Arabia	Cross-sectional study	Adolescent girls aged 13-18 years and female adult aged 19-29 years	A face-to-face interview questionnaire
14.	Cheema et al., (2021)	Qatar	Cross-sectional study	University students	Self-administered questionnaire
15.	Fonseca et al., (2021)	Brazil	Cross-sectional study	College Students	Self-administered questionnaire
16.	Didarloo et al., (2022)	North-west Iran	Cross-sectional study	University students	Self-administered questionnaire
17.	Yousif et al., (2019)	Sudan	Cross-sectional study	Medical students	Self-administered questionnaire
18.	Sajjad et al., (2023)	Pakistan	Cross-sectional study	College students	Self-administered questionnaire
19.	Marrero et al., (2021)	Puerto Rico	Cross-sectional study	Adults	Self-reported through assessment
20.	Abdullah et al., (2016)	Malaysia	Cross-sectional study	Adolescents aged 12 to 19 years	Self-administered questionnaire
21.	Ojo et al., (2023)	High-income countries	Systematic review	Black, Asian and other minority ethnic population	Data synthesis

Association Between Sociodemographic Background and Fast-Food Consumption

Fast food consumption among university students is a multifaceted issue influenced by sociodemographic factors, lifestyle behaviours, and external influences. Understanding these factors is essential for addressing the growing trend of unhealthy dietary habits in this population. This section synthesises findings from various studies to provide a comprehensive overview of the key determinants of fast-food consumption.

Sociodemographic Factors

Sociodemographic characteristics such as age, gender, income, ethnicity, and field of study

significantly shape fast food consumption patterns among university students. Age plays a critical role, with older students (above 21 years) consuming higher quantities of sugary drinks and fast food compared to their younger counterparts (6). This trend may be attributed to increased independence, busier schedules, and greater exposure to fast food outlets. Gender differences are also evident, with women more likely to consume fast food such as burgers, fries, and pizzas, while men are more inclined toward "fast food" and "protein shake" dietary patterns (10). Additionally, women exhibit higher rates of sedentary behaviour and obesity, which may be linked to their dietary choices (8).

Income and financial constraints further influence dietary habits, with students from lower-income backgrounds often relying on fast food for its affordability and convenience (11). Monthly expenditure on food and parental income significantly impacts students' food security and dietary choices, with financial constraints limiting access to healthier options (12). Ethnicity and cultural background also play a role, as dietary habits vary across different groups. For instance, Malay students tend to consume more ultra-processed foods, including fast food, compared to other ethnic groups (1). Cultural norms and traditions further influence food preferences and consumption patterns (13). Lastly, the field of study affects dietary choices, with students in health-related fields (e.g., Health Sciences) more likely to make healthier food choices due to their access to health information and nutrition knowledge (7). In contrast, students in non-health-related fields may have less awareness of the health implications of fast-food consumption.

Lifestyle and Behavioural Factors

Lifestyle choices and behaviours, such as physical activity levels, cooking skills, and social influences, are critical determinants of fast-food consumption among university students. Sedentary behaviour is strongly associated with higher fast-food consumption and an increased risk of obesity (8). A study in Brazil found that 44.2% of students did not meet the recommended physical activity levels by WHO, with physically inactive students more likely to be overweight (14). Cooking skills also play a significant role, as students who lack these skills are more likely to rely on fast food and takeaway meals (7). Poor cooking skills are associated with higher energy intake and unhealthy eating patterns, further exacerbating the reliance on fast food (15).

Social influences, such as peer pressure and family habits, further shape dietary choices. Peer pressure and social activities often drive students to consume fast food, particularly in group settings (16). Family habits and traditions also play a role, with students from families that frequently consume fast food more likely to adopt similar habits (12). These social and behavioural factors highlight the importance of addressing not only individual choices but also the broader social environment that influences students' dietary decisions.

External Influences

External factors such as taste, convenience, affordability, and marketing significantly influence fast food consumption among university students. Taste is a major factor, with the enjoyable flavours of fast food leading to repeated consumption (5). Convenience is another critical factor, as the proximity of fast-food outlets to university campuses and the ease of access (e.g., delivery services) make fast food a convenient option for busy students (2). Affordability also plays a key role, as fast food is often more budget-friendly than healthier alternatives, making it a popular choice among students with limited financial resources (13). Other than that, personal preferences, outlet cleanliness, and halal certification further influence fast food consumption, with students favouring establishments that meet their taste and dietary requirements (3,18). Sociability, or the desire to socialise with friends and family, often drives students to visit fast food outlets for shared meals (14,19).

Marketing strategies, including promotional offers, discounts, and attractive packaging, further encourage students to choose fast food (10). Social media and viral food trends also play a significant role in promoting fast food consumption, as they create a sense of novelty and excitement around unhealthy food choices (7). These external influences highlight the need for stricter regulations on fast food marketing and greater awareness campaigns to promote healthier alternatives.

Health Implications

The frequent consumption of fast food is associated with several negative health outcomes, including obesity, poor nutritional status, and chronic diseases. Studies have found a strong correlation between fast food consumption and increased body weight, with overweight and

obese students more likely to consume fast food regularly (20). Fast food is often high in calories, sugar, and unhealthy fats, leading to poor dietary quality and an increased risk of chronic conditions such as diabetes and cardiovascular diseases (9). These health implications underscore the urgent need for interventions to reduce fast food consumption among university students.

Fast food consumption among university students is influenced by a complex interplay of sociodemographic factors, lifestyle behaviours, and external influences. Age, gender, income, ethnicity, and field of study shape dietary choices, while lifestyle factors such as physical activity levels, cooking skills, and social influences further impact consumption patterns. External factors, including taste, convenience, affordability, and marketing, also play a significant role in driving fast food consumption. Addressing these factors requires a multifaceted approach, including targeted interventions to promote healthier eating habits, stricter regulations on fast food marketing, and greater awareness of the health risks associated with fast food. Future research should explore the cultural and psychological factors driving fast food consumption and evaluate the effectiveness of interventions to reduce fast food intake among university students.

Dietary Habits of Students

Research indicates that undergraduate students often exhibit specific patterns and frequencies in their fast food consumption. The differences can be traced to factors such as sample size, and cultural, social, and economic characteristics of the population (21). On the other hand, a cross-sectional study conducted among 387 undergraduate students, aged 18–25 years at a South African university, indicated that female students consumed more desserts, cakes, biscuits, chocolates, and sweets than male students. University students have unsuitable dietary habits like skipping meals and consuming high amounts of high-fat energy (8,9). According to Majeed (7), a study conducted in Thailand revealed that students in health social sciences and humanities (SH) consumed fast food such as pizza, hamburgers, and French fries at least once weekly. Additionally, 8% of these students consumed bubble milk tea at least once a day. The consumption of various types of fast food by university students can have detrimental effects on their health and academic performance. The advantages in identifying meal eating patterns are important for comprehending eating habits and designing nutrition education activities that are more objectively planned (15).

Higher consumption of sugary foods has been linked to an increased risk of obesity among college students. Therefore, it is crucial to recognise these trends to develop targeted planning and instructional initiatives that promote students' adoption of better eating practices. In order to have a more thorough picture of students' nutritional habits, additional research is likely necessary, considering the gender inequalities observed in fast food consumption.

CONCLUSION

In conclusion, the literature review provides various input on fast food among adolescents, particularly university students, highlighting its strong association with sociodemographic variables. Furthermore, recognising the contributing factors including preferences, price, and accessibility reveals the intricate nature of this issue. It becomes increasingly crucial to address dietary challenges among undergraduate students. Promoting better nutritional habits not only enhances student health but also significantly contributes to overall academic performance. Therefore, this study suggests emphasising the need for targeted interventions to promote healthier eating habits among university students. Furthermore, an observational or longitudinal study to determine the association between sociodemographic factors and fast-food dietary habits could be carried out.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this article.

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AUTHOR CONTRIBUTIONS

AAB: performed critical appraisal and preparing manuscript.
NAMS: supervise the keywords used during literature search.
SNS: conceptualized the methodology and finalized the manuscript.

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