



Ultra-Processed Food Intake and Sedentary Behavior as Contributing Factors to Overweight and Obesity Among Final-Year Students: A Narrative Review

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Abstract

Obesity is becoming increasingly common among university students and may be influenced by frequent consumption of ultra-processed foods (UPFs) and a sedentary lifestyle. This narrative review explores the potential link between these two factors and weight gain in young adults, based on findings from recent studies. UPFs, typically high in calories, added sugars, and unhealthy fats, are often a regular part of students' diets and contribute to poor overall nutritional quality. Meanwhile, prolonged sedentary behavior, such as extended screen time or studying, is associated with lower energy expenditure and increased body fat. These two habits may interact and further elevate the risk of obesity, although more evidence is needed to confirm a causal relationship. Moreover, academic stress, limited time for physical activity, and the easy accessibility of fast food may worsen the issue. Universities are therefore encouraged to support healthier behaviors through improved nutrition education and physical activity promotion. Helping students adopt better lifestyle choices could contribute to lowering obesity rates and improving their long-term health outcomes.

Keywords: *Ultra-Processed Foods, Sedentary Behavior, Obesity, Physical Activity, University Students.*

INTRODUCTION

In recent decades, global shifts in dietary habits and lifestyle patterns have raised significant public health concerns, particularly among young adults in academic environments. Globally, the prevalence of overweight and obesity has increased substantially. In 2022, approximately 2.5 billion adults aged 18 years and older were classified as overweight, including 890 million who were living with obesity. In addition, 43% of adults worldwide were overweight and 16% were classified as obese, highlighting the growing burden of this condition (World Health Organization, 2023). Among university students, this trend is also evident, reflecting changes in dietary patterns and physical activity levels during a critical stage of life.

The growing reliance on convenience-based food choices, such as ready-to-eat meals, packaged snacks, and sweetened beverages, has led to a marked increase in the consumption of ultra-processed foods (UPFs). This shift is also driven by changes in modern food systems, where processed foods account for a substantial proportion of total

food sales and consumption. In addition to broader food system changes, the surrounding food environment plays a crucial role in shaping dietary behaviors among university students. Evidence from a systematic review indicates that food choices in university settings are strongly influenced by factors such as taste, availability, and price, which often lead students to select energy-dense and nutrient-poor foods (Li *et al.*, 2022). The increasing availability and accessibility of ultra-processed foods, particularly among younger populations, further contribute to their widespread consumption (AlBaloul, 2026). Ultra-processed foods are typically characterized by high levels of added sugars, saturated fats, sodium, and artificial additives, while lacking essential nutrients and dietary fiber (Machado-Rodrigues *et al.*, 2024). High consumption of UPFs has been associated with adverse nutritional and metabolic outcomes, including increased visceral fat and poorer cellular health indicators, such as lower phase angle values (Detopoulou *et al.*, 2024; Shim, 2025). Furthermore, psychological factors also play a significant role, as higher perceived stress has been linked to increased UPF consumption, suggesting that stress may drive unhealthy dietary choices as coping mechanisms (Lopes Cortes *et al.*, 2021).

Among university students, particularly those in their final year, intense academic workloads, time constraints, and psychological stress contribute to unhealthy lifestyle patterns, including frequent consumption of ultra-processed foods due to their accessibility, affordability, and palatability (Detopoulou *et al.*, 2024; Ghosh & Mulley, 2025). At the same time, sedentary behavior has become increasingly prevalent, driven by prolonged study hours and screen-based academic activities. Globally, the prevalence of insufficient physical activity continues to rise, with recent estimates indicating that approximately 31.3% of adults did not meet recommended activity levels in 2022, reflecting a substantial increase from 23.4% in 2000 (Strain *et al.*, 2024). Sedentary behavior has been associated with increased body fat, impaired sleep quality, and a higher risk of metabolic disorders (Liu *et al.*, 2021). Furthermore, evidence suggests that prolonged sedentary time is often accompanied by increased consumption of ultra-processed foods, indicating a clustering of unhealthy lifestyle behaviors among university students (Chávez-Hernández *et al.*, 2025). This co-occurrence of high UPF consumption and sedentary behavior may amplify obesity risk, as both contribute to positive energy balance and fat accumulation (Beltrán-Carrillo *et al.*, 2022; Machado-Rodrigues *et al.*, 2024).

Previous evidence suggests that the academic and psychosocial stressors experienced by university students vary across different years of study. While students in earlier years primarily face challenges related to adjustment and social integration, final-year students are more likely to experience concerns regarding future employment, graduation, and life after university (Mofatteh, 2020). These unique challenges may increase psychological distress, encourage unhealthy coping behaviors such as emotional eating and reliance on convenient ultra-processed foods, and reduce opportunities for regular physical activity, as academic demands and time constraints have been shown to negatively influence dietary and lifestyle behaviors among university students (Almoraie *et al.*, 2025). Consequently, final-year students may be particularly vulnerable to the combined effects of unhealthy dietary patterns and sedentary behavior, placing them at greater risk of overweight and obesity.

Although ultra-processed food consumption and sedentary behavior have been widely studied as separate risk factors, existing narrative reviews have primarily focused on dietary factors or obesity independently, with limited attention to the interaction between ultra-processed food consumption and sedentary behavior among final-year university students, a subgroup facing unique academic and psychosocial pressures.

Previous narrative reviews by Dicken and Batterham (2024) and Shim (2025) primarily discussed the relationship between ultra-processed food consumption and obesity. However, these reviews did not comprehensively examine how UPF consumption and sedentary behavior interact to influence obesity risk, particularly among final-year university students.

This limitation underscores the need for a more integrated understanding of how dietary and lifestyle factors interact to influence obesity risk within this high-risk population. Therefore, this narrative review aims to synthesize current evidence on the interaction between ultra-processed food consumption and sedentary behavior and their association with overweight and obesity among final-year university students. By focusing on this high-risk subgroup, the findings of this review may contribute to the development of more targeted health promotion strategies and provide directions for future research aimed at preventing overweight and obesity among university students.

METHOD

This study employed a narrative review design by collecting and analyzing peer-reviewed journal articles related to ultra-processed food (UPF) consumption, sedentary behavior, and obesity-related outcomes among university students, with a specific focus on final-year populations. A structured literature search was conducted using several academic databases, including PubMed, ScienceDirect, SpringerLink, Frontiers, and Google Scholar. The search strategy used combinations of keywords with Boolean operators (AND/OR) to refine and broaden relevant search results. The keywords used included: (“ultra-processed food” OR “UPF”), AND (“sedentary behavior” OR “physical inactivity” OR “sedentary lifestyle”), AND (“obesity” OR “body mass index” OR “BMI” OR “overweight”), AND (“university students” OR “college students”). Studies were identified through a structured search and selected through sequential stages of identification, screening, eligibility assessment, and inclusion. Studies were eligible if they involved university or college students as the target population, examined ultra-processed food consumption and/or sedentary behavior in relation to overweight, obesity, or related health outcomes, reported primary research findings, and were published in English, available in full text, and published between 2020 and 2025.

Articles were first screened based on their titles and abstracts for relevance to the review objectives, followed by full-text assessment for eligibility. Duplicate records were removed, and studies that did not specifically examine ultra-processed food consumption or sedentary behavior, as well as review articles, conference papers, editorials, and other non-primary or non-peer reviewed publications, were excluded. Data from the included studies were extracted descriptively, including information on study characteristics, measurement instruments, variables, and key findings. The evidence was then synthesized narratively to provide a comprehensive understanding of the interaction between dietary and lifestyle factors in relation to overweight and obesity among final-year university students. The literature identification and selection process is presented in Figure 1.

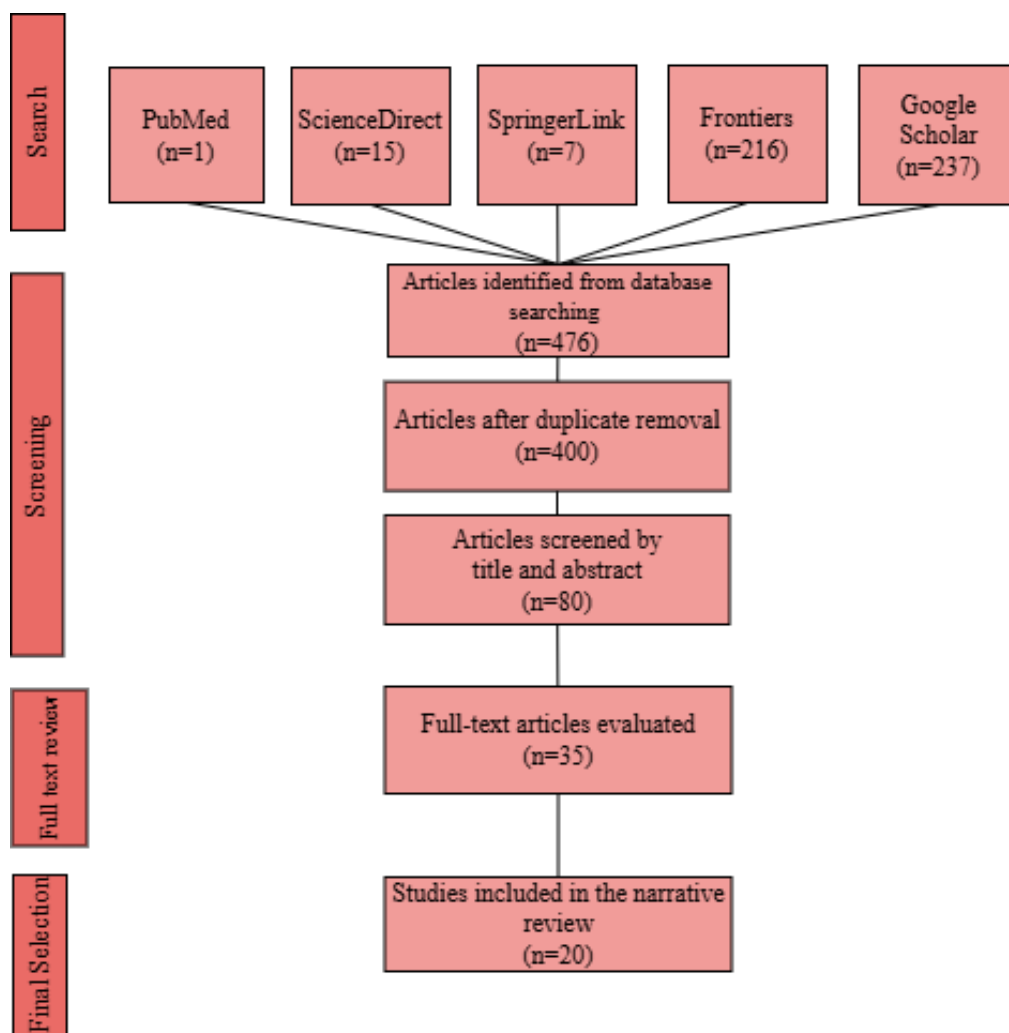


Figure 1. Literature Search and Study Selection Process

RESULT

The findings from the included studies indicate patterns related to ultra-processed food consumption, sedentary behavior, and obesity-related outcomes among university students. A summary of the characteristics, measurement instruments, and main findings of the included studies is presented in Table 1.

Table 1. Summary of Studies on Ultra-Processed Food Consumption, Sedentary Behavior, and Obesity

No	Author (Year)	Study Design	Population	Variables	Instruments	Main Findings
1.	Detopoulou <i>et al.</i> (2024)	Cross-sectional	University Students in Greece (n = 151)	UPF Consumption, phase angle	The Hellenic Physical Activity Questionnaire, FFQ (Nova system), Anthropometrical and BIA	Higher UPF consumption was significantly associated with lower phase angle values, indicating poorer cellular health and nutritional status.
2.	Ghosh & Mulley (2025)	Cross-sectional	University Students in India (n = 110)	UPF intake, body composition	FFQ (Nova classification), Constipation Scoring System	Frequent consumption of UPFs was associated with increased body fat

No	Author (Year)	Study Design	Population	Variables	Instruments	Main Findings
3.	Barbosa et al. (2024)	Cross-sectional	Brazilian university students (n = 1,353)	UPF consumption, sedentary behavior, physical inactivity, fruit and vegetable intake, anxiety, depression	(CSS), Premenstrual Symptoms Screening Tool, Anthropometric measurements (BMI, body fat percentage, visceral fat). DASS-21, Vigitel-based dietary questionnaire, Vigitel physical activity questionnaire, IPAQ sitting-time questionnaire	percentage and unfavorable body composition outcomes. A greater number of co-occurring obesogenic behaviors was associated with significantly higher odds of anxiety & depression.
4.	Liu et al. (2021)	Cross-sectional	Chinese University Students (n =220)	Sedentary behavior, BMI, sleep quality	ActiGraph GT9X Link accelerometer, BMI	Increased sedentary behavior was associated with higher BMI and poorer sleep quality among university students.
5.	Chávez-Hernández et al. (2025)	Cross-sectional	University Students in Mexico City & Salamanca (n =265)	Sedentary behavior, dietary patterns	Self report of UPF intake, IPAQ-SF, WEBEXEC (Spanish version) questionnaire	Higher sedentary time was associated with increased consumption of UPFs and unhealthy eating patterns
6.	Maltos-Gómez et al. (2024)	Cross-sectional	Mexican university (aged 18-30) (n = 158)	UPF consumption, physical activity, BMI, visceral fat, cardiovascular health, depression, sleep quality	Health behavior questionnaire (weekly UPF consumption, physical activity), InBody 270 bioelectrical impedance analyzer, Life's Essential 8 questionnaire, Beck Depression Inventory (BDI-II), Pittsburgh Sleep Quality Index (PSQI)	Higher levels of physical activity and greater fruit and vegetable consumption were associated with lower visceral fat. Frequent consumption of ultra-processed foods was associated with significantly higher depression scores
7.	Silva Barros & Souza Quieroz (2025)	Cross-sectional	Nutrition University students (n = 1093)	UPF consumption, academic progression	Self-administered electronic questionnaire (Google forms) assessing demographic characteristics, physical activity, frequency of UPF consumption	Academic progression was associated with reduced ultra-processed food consumption, indicating a trend toward healthier dietary behaviors.

No	Author (Year)	Study Design	Population	Variables	Instruments	Main Findings
8.	Hoffmann et al. (2025)	Cross-sectional	German University Students (n = 532)	Sedentary behavior, physical activity, BMI/body composition	ActiGraph wGT3X-BT accelerometer, modified Baecke Questionnaire, Sitting Questionnaire, BIA	University students exhibited high sedentary behavior. Greater sedentary behavior was inversely associated with light-intensity physical activity, moderate-to-vigorous physical activity, and sleep duration.
9.	Morales et al. (2023)	Cross-sectional	Latin American University undergraduate students (n = 4,539)	UPF consumption, homemade fried food, BMI/overweight -obesity, physical activity	Duran Validated Eating Habits Survey for UPF intake, self-reported height and weight for BMI, self-reported physical activity questionnaire	Frequent consumption of fast food, sugary drinks, and homemade fried food was significantly associated with higher odds of overweight and obesity among university students. Higher UPF consumption was positively associated with greater digital addiction and night eating syndrome. Higher UPF significantly had longer digital media use.
10.	Eroğlu et al. (2025)	Cross-sectional	Turkish University Students (n = 2,512)	UPF consumption, digital addiction, night eating syndrome, BMI	Screening Questionnaire of Highly Processed Food Consumption (sQ-HPF), Night Eating Questionnaire (NEQ), Digital Addiction Scale, self-reported BMI.	Daily consumption of sugary beverages (≥ 1 serving/day) was significantly associated with higher odds of obesity among university students. Higher UPF consumption was significantly associated with peer influence and easier access to UPF, physical activity was not significantly associated with UPF consumption.
11.	Durán-Agüero et al. (2021)	Cross-sectional	Chilean university students (n = 1,947)	UPF consumption, BMI/obesity	Validated eating habits survey, objective height and weight measurements for BMI. self-reported physical activity, and tobacco use	Higher UPF consumption was significantly associated with higher odds of obesity among university students. Higher UPF consumption was significantly associated with peer influence and easier access to UPF, physical activity was not significantly associated with UPF consumption.
12.	Vashtianada et al. (2023)	Cross-sectional	Non-health undergraduate students, Universitas Indonesia (n = 149)	UPF consumption, physical activity	Food Frequency Questionnaire (FFQ); International Physical Activity Questionnaire-Short Form (IPAQ-SF).	Higher UPF consumption was significantly associated with higher BMI, waist circumference, overweight, and abdominal obesity.
13.	Alomari & Almoraie (2025)	Cross-sectional	Saudi university students (King Abdulaziz University) (n = 190)	UPF consumption, obesity indicators	2x24-h dietary recalls classified using NOVA system, self-reported anthropometric measurements (BMI, waist circumference), IPAQ-SF	Higher UPF consumption was significantly associated with higher BMI, waist circumference, overweight, and abdominal obesity.

No	Author (Year)	Study Design	Population	Variables	Instruments	Main Findings
14.	Ganesrau et al. (2023)	Cross-sectional	Malaysian public university students (n = 250)	UPF consumption, BMI	24-hour dietary record; NOVA food classification; self-reported anthropometry (BMI)	UPF contributed 31% of total daily energy intake and showed a significant positive correlation with BMI
15	Hanifa et al. (2024)	Case-control	Faculty of Health & Sciences, UPN Veteran Jakarta (n = 94)	UPF consumption, physical activity, night eating syndrome	Food Frequency Questionnaire (FFQ), International Physical Activity Questionnaire–Short Form (IPAQ-SF), Night Eating Questionnaire (NEQ), anthropometric measurements (BMI)	Neither ultra-processed food consumption nor physical activity showed a significant association with overweight/obesity
16.	Peixoto et al. (2025)	Cross-sectional	Brazilian university students from 94 universities (n = 5,946)	Generalized anxiety disorder (GAD), UPF consumption, eating behaviors	GAD-7 questionnaire; SISVAN Food Consumption and Eating Behavior Markers	University students with probable GAD showed significantly higher consumption of ultra-processed foods.
17.	Benchehida et al. (2025)	Cross-sectional	Ibn Tofail University Students, Morocco (n = 502)	Physical activity, dietary practices, overweight	International Physical Activity Questionnaire–Short Form (IPAQ-SF), Healthy Lifestyle Questionnaire (CEVS-II), self-reported BMI questionnaire	Unhealthy dietary practices (frequent snacking, meal skipping, consumption of high-fat/high-sodium foods) were associated with overweight and an unhealthy lifestyle
18.	Moral-Moreno et al. (2025)	Cross-sectional	University students from Chile, Mexico, Spain, and Italy. (n = 686)	Diet quality, physical activity, BMI, lifestyle and sociodemographic factors	Healthy Eating Index (HEI), IPAQ-Short Form	Lower physical activity, obesity, and several sociodemographic factors were associated with poorer diet quality.
19.	Budiargo et al. (2025)	Cross-sectional	Public Health Faculty students, Universitas Indonesia (n = 147)	UPF consumption frequency, UPF energy intake, obesity (body fat percentage)	Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) based on NOVA classification, Bioelectrical Impedance Analysis (BIA)	Higher frequency of ultra-processed food consumption and greater UPF energy intake were significantly associated with obesity. Students with frequent UPF consumption had 3.08 times higher odds of obesity

No	Author (Year)	Study Design	Population	Variables	Instruments	Main Findings
20.	Setyaningsih et al. (2024)	Cross- sectional	Indonesian college students (n = 87)	UPF consumption, diet quality, overweight status	Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) based on NOVA classification, Diet Quality Index- International (DQI-I), Bioelectrical Impedance Analysis (BIA)	Higher ultra- processed food consumption was significantly associated with poorer diet quality and overweight status. Greater UPF intake was related to lower dietary quality and increased risk of excess body weight.

Based on the summary presented in Table 1, the included studies consistently demonstrate associations between ultra-processed food (UPF) consumption, sedentary behavior, and obesity-related outcomes among university students. Higher UPF intake was commonly associated with unfavorable body composition, poorer dietary quality, increased body fat, overweight, obesity, and impaired physiological health. Similarly, prolonged sedentary behavior, was frequently associated with higher body mass index (BMI), poorer sleep quality, and unhealthy dietary patterns. Several studies also reported that sedentary behavior and higher UPF consumption tended to co-occur, suggesting a clustering of unhealthy lifestyle behaviors. In addition, psychosocial factors, including stress, anxiety, digital addiction, and academic demands, were associated with increased UPF consumption in several studies. Although the included studies differed in sample size, measurement instruments, and health outcomes, the overall evidence consistently supports an association between unhealthy dietary and lifestyle behaviors and obesity related outcomes among university students.

DISCUSSION

Ultra-Processed Food Consumption and Obesity Risk

The high consumption of ultra-processed foods (UPFs) among university students can be explained by a combination of convenience, accessibility, and academic-related constraints. This pattern may also be influenced by broader changes in modern food systems, where ultra-processed foods are widely available and increasingly dominate food markets, making them more accessible and appealing to young adults (AlBaloul, 2026). Students, particularly those in their final year, often experience time limitations and increased stress, leading to a preference for ready-to-eat and energy-dense food options (Fondevila-Gascón *et al.*, 2022; Ghosh & Mulley, 2025). These foods are typically high in added sugars, unhealthy fats, and sodium while lacking essential nutrients, which may contribute to excessive energy intake and reduced satiety. Evidence indicates that higher consumption of ultra-processed foods is associated with poorer dietary quality, characterized by higher intake of total fat, saturated fat, and salt, alongside lower intake of protein and dietary fiber (Dicken & Batterham, 2022). Such nutrient imbalances may increase the risk of obesity and related metabolic disorders (AlBaloul, 2026; Monda *et al.*, 2024). Recent primary studies among university students further support these mechanisms by consistently demonstrating that greater UPF consumption is associated with increased BMI, abdominal obesity, higher body fat percentage, poorer diet quality, and impaired body composition (Alomari & Almoraie, 2025; Ganesrau *et al.*, 2023; Setyaningsih *et al.*, 2024; Budiargo *et al.*, 2025). These findings suggest that

the detrimental effects of UPFs extend beyond excess energy intake and may influence overall nutritional quality and metabolic health even during early adulthood. Frequent UPF consumption has also been associated with impaired cellular health and unfavorable body composition, and increased adiposity even before clinical obesity develops (Detopoulou *et al.*, 2024; Ghosh & Mulley, 2025). These findings also suggest that nutritional knowledge alone may not be sufficient to promote healthier dietary choices, as poor diet quality and high UPF intake remain common even among university students (Setyaningsih *et al.*, 2024; Kabasakal-Cetin *et al.*, 2024). Even nutrition students continue to consume high levels of UPFs, indicating that environmental and psychosocial factors play a significant role in shaping dietary habits (Silva Barros & Souza Queiroz, 2025). This observation indicates that food choices are influenced not only by knowledge but also by environmental accessibility, convenience, affordability, and psychosocial factors. Furthermore, because UPFs are highly palatable, energy-dense, and rapidly digested, they may disrupt normal satiety signaling, encourage passive overconsumption, and promote sustained positive energy balance, thereby increasing obesity risk (Dicken & Batterham, 2024; Budiargo *et al.*, 2025).

Sedentary Behavior and Health Outcomes

Sedentary behavior is another critical factor contributing to obesity risk in university populations. It is defined as any walking activity characterized by an energy expenditure of ≤ 1.5 metabolic equivalents (METs) while in a sitting, reclining, or lying posture (Wu *et al.*, 2023). Academic demands, particularly during the final year, often require prolonged sitting and screen-based activities, resulting in reduced energy expenditure. Prolonged sedentary behavior also decreases skeletal muscle contractions resulting in reduced glucose uptake, impaired insulin sensitivity, and lower lipid oxidation, thereby promoting positive energy balance and adiposity (Wu *et al.*, 2023). This imbalance between energy intake and expenditure may increase the likelihood of weight gain and metabolic dysfunction (Liu *et al.*, 2021). Recent evidence further indicates that university students spend a substantial proportion of their day in sedentary activities, averaging more than 10 hours of sedentary time per day. Higher sedentary behavior has been consistently associated with lower levels of light-intensity and moderate to vigorous physical activity, suggesting that prolonged sitting often displaces health-promoting movement rather than being compensated for through exercise (Hoffmann *et al.*, 2025).

In addition to physical effects, sedentary behavior is associated with broader health consequences, including poor sleep quality and psychological distress. Emerging evidence also suggests that dietary factors, particularly ultra-processed food consumption, may further exacerbate sleep disturbances. Diets high in ultra-processed foods have been associated with shorter sleep duration and poorer sleep quality, potentially due to their low nutrient density, high glycemic load, and pro-inflammatory effects (Fatima *et al.*, 2025). Recent findings further suggest that sedentary behavior frequently coexists with other unhealthy lifestyle behaviors, including higher consumption of ultra-processed foods. This behavioral pattern has also been associated with poorer mental health outcomes, with young adults exhibiting both high sedentary time and greater UPF intake reporting a higher likelihood of depressive symptoms than those with healthier lifestyle patterns (Ren *et al.*, 2025). Students with high sedentary time may also experience decreased motivation for physical activity, reinforcing a cycle of inactivity (Beltrán-Carrillo *et al.*, 2022). Consistent with this, greater sedentary behavior has been shown to be inversely associated with both light-intensity and moderate-to-vigorous physical activity among university students (Hoffmann *et al.*,

2025). This pattern may also reflect broader global trends in physical inactivity. Despite increasing awareness of its health risks, the prevalence of insufficient physical activity has continued to rise over time, indicating that current interventions may not be sufficient to effectively address this issue (Strain *et al.*, 2024). These findings suggest that sedentary behavior is not only an individual-level concern but also a systemic challenge influenced by environmental and societal factors. Therefore, reducing sedentary time and incorporating even low-intensity physical activity into daily routines may improve metabolic health, reduce the risk of non-communicable diseases, and lower obesity risk, emphasizing the importance of feasible and sustainable behavioral changes among university students (Wu *et al.*, 2023).

Interaction Between Dietary and Lifestyle Factors

The co-occurrence of high UPF consumption and sedentary behavior reflects a clustering of unhealthy lifestyle patterns among university students. Sedentary activities, such as prolonged screen time, are often accompanied by increased snacking and consumption of ultra-processed foods, which may further contribute to excessive energy intake (Machado-Rodrigues *et al.*, 2024). Recent evidence also suggests that unhealthy dietary practices and low physical activity frequently coexist among university students, reinforcing an obesogenic lifestyle pattern rather than occurring as isolated behaviors (Benchehida *et al.*, 2025; Ren *et al.*, 2025). This interaction may also be influenced by the university food environment, where easy access to inexpensive, convenient, and highly palatable foods, together with prolonged academic and screen-based activities, encourages the simultaneous adoption of unhealthy dietary behaviors and sedentary lifestyles (Li *et al.*, 2022). The synergistic effects of high UPF consumption and sedentary behavior on obesity risk may be explained through complementary metabolic mechanisms. Ultra-processed foods are typically rich in added sugars, saturated fats, refined carbohydrates, and energy-dense ingredients, while being low in dietary fiber and essential micronutrients. Frequent consumption of these foods promotes repeated postprandial glucose and insulin responses, stimulates *de novo* lipogenesis, and impairs appetite regulation, thereby increasing total energy intake (Ganesrau *et al.*, 2023). At the same time, prolonged sedentary behavior reduces skeletal muscle contractions, leading to lower glucose uptake, decreased insulin sensitivity, and reduced energy expenditure. When these behaviors occur simultaneously, excess energy intake combined with impaired metabolic function may accelerate visceral fat accumulation and contribute to the development of overweight and obesity (Budiargo *et al.*, 2025; Machado-Rodrigues *et al.*, 2024). These findings align with the concept of behavioral clustering, where multiple unhealthy lifestyle behaviors tend to co-occur rather than exist in isolation. Previous research has shown that individuals commonly exhibit combinations of risk factors, and the co-occurrence of multiple unhealthy behaviors is more frequent than would be expected by chance alone. Such clustering suggests that unhealthy dietary habits and sedentary behavior may interact synergistically, thereby amplifying their combined impact on obesity risk and overall health outcomes (Barakat *et al.*, 2023; Ortiz *et al.*, 2022). Despite growing evidence supporting the coexistence of these behaviors, many studies continue to examine dietary intake and physical activity as independent factors, limiting the understanding of their synergistic contribution to obesity risk.

Psychosocial Influences on Health Behaviors

Psychological factors, including stress, anxiety, and depressive symptoms, play a significant role in influencing both dietary and lifestyle behaviors among university students. Academic pressure, concerns about future employment, financial difficulties,

and uncertainty regarding graduation have been identified as common sources of psychological distress, particularly among final-year students (Mofatteh, 2020). As a coping response to these stressors, students may engage in emotional eating and preferentially consume highly palatable ultra-processed foods (Lopes Cortes *et al.*, 2021). Recent evidence further indicates that generalized anxiety disorder is associated with higher consumption of ultra-processed foods and unfavorable eating behavior markers among university students, suggesting that psychological distress may influence food choices beyond stress-induced emotional eating alone (Peixoto *et al.*, 2025). Ultra-processed foods have also been shown to influence eating behavior through their effects on the brain's reward system, which can amplify cravings and reduce satiety signals, thereby promoting overconsumption. Moreover, these foods are frequently consumed in response to stress and negative emotions due to their highly palatable and hedonic properties, which may further reinforce unhealthy dietary patterns and contribute to adverse mental health outcomes among young adults (Lutz *et al.*, 2025). Moreover, obesogenic behaviors, including unhealthy dietary patterns, physical inactivity, and prolonged sedentary behavior, frequently co-occur among university students and have been associated with poorer mental health outcomes, suggesting a bidirectional relationship between psychological well-being and lifestyle behaviors (Barbosa *et al.*, 2024). However, the relationship between psychological distress and health behaviors is multifactorial and may be influenced by individual coping strategies, social support, and environmental conditions, highlighting the need for comprehensive health promotion strategies. Therefore, interventions targeting obesity prevention among university students should integrate nutrition education, opportunities for physical activity, and mental health support to address the interconnected behavioral and psychosocial determinants of health.

Implication for Practice and Future Research

The findings of this review emphasize the importance of a comprehensive approach to obesity prevention among university students. Interventions should target dietary habits, sedentary behavior, and underlying psychosocial factors through integrated health promotion strategies. Universities play a strategic role in creating supportive health environments by improving access to affordable and nutritious foods, limiting the availability of ultra-processed food options on campus, promoting active learning environments that reduce prolonged sitting, and providing accessible mental health support services for students. Future research should prioritize longitudinal and intervention studies to clarify the causal pathways linking ultra-processed food consumption, sedentary behavior, psychosocial factors, and obesity. In addition, studies examining the interaction of multiple lifestyle behaviors rather than isolated risk factors are needed to support the development of more effective obesity prevention strategies among university students, particularly those in their final year.

CONCLUSION

This narrative review highlights that ultra-processed food consumption and sedentary behavior are interconnected lifestyle factors that contribute to increased overweight and obesity risk among university students, particularly those in their final academic year. The evidence suggests that these behaviors frequently coexist and are shaped not only by individual choices but also by academic demands, food environments, and psychosocial factors such as stress and anxiety. Their interaction may amplify obesity risk through complementary behavioral and metabolic mechanisms, underscoring the importance of addressing these factors simultaneously rather than in isolation. Therefore,

comprehensive obesity prevention strategies should integrate healthy dietary promotion, reductions in sedentary behavior, supportive campus environments, and mental health initiatives to improve student health and well-being.

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