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Systematic Review: Fast Food Consumption, Sedentary Lifestyle, and Adolescent Obesity

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Abstract
Introduction: *Adolescence is a critical period of development in which lifestyle choices have a substantial influence on long-term health. The rising incidence of obesity among adolescents can be attributed to the increased intake of fast food, which is heavy in calories, fat, and sugar, as well as a sedentary lifestyle.* ***Objective:*** *The purpose of this study is to examine the association between fast food intake, sedentary behavior, and obesity in adolescents, focusing on important contributing variables and potential solutions.* ***Method:*** *This literature review was carried out by examining relevant studies from databases Google Scholar. Articles published over the previous decade concentrating on adolescents were considered, whereas studies that did not expressly address obesity or included adult populations were eliminated.* ***Result and Discussion****: Frequent fast food consumption is linked to high calorie intake, poor nutritional quality, and an elevated risk of metabolic diseases. Furthermore, a sedentary lifestyle, which includes excessive screen time and little physical activity, increases the risk of obesity by supporting a positive energy balance. Effective solutions include school-based nutrition instruction, family participation, and regulations that regulate fast food marketing, as well as physical activity promotion techniques.* ***Conclusions:*** *Fast food intake and sedentary behavior are major factors to adolescents obesity. Addressing these challenges involves a multifaceted strategy that includes dietary changes, physical activity promotion, and policy-driven initiatives to encourage healthy habits. Further study is needed to create long-term obesity prevention measures for adolescents.*

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Introduction

Adolescent obesity has become a major public health issue at both the global and national levels. Since 1975, the global obesity rate has more than quadrupled. In 2016, 39% of individuals globally were overweight (BMI > 25), while 13% were obese (BMI ≥ 30). According to the World Health Organization, the vast majority of the world's population now lives in countries where obesity and overweight are more common causes of death than underweight. The World Health Organization (WHO) defines adolescents as those aged 10 to 19 (Word Health Organization, 2024). Adolescents make up roughly 16% of the global population, with Southeast Asia accounting for more than 20% of them (Mudunna, Tran, Antoniades, Chandradasa, & Fisher, 2025; Sharma, 2025).

Obesity that starts in adolescence often lasts into adulthood, leading to a number of long-term health problems and a shorter life. These effects put a lot of stress on healthcare systems, which shows how important it is to start preventative measures early (Kansra, Lakkunarajah, & Jay, 2021). Examining the main contributing factors, such as fast food consumption and sedentary lifestyle, is essential to comprehending these health effects. Many factor can influence this problem such as because by genetic, economic and social factors, so this condition affects lifestyle, insufficient sleep and physical activity (Masood & Moorthy, 2023; Omer, 2020). The rise in fast food use is one of the biggest changes in people's lives in recent years. Fast food is food that comes in a package and is usually high in calories (Bahmani, Akhondzadeh, Hossainzadeh, & Gharibi, 2025). People also often say that fast food is a big reason why obesity rates are going up. This kind of food usually has a lot of fat, sugar, and salt, but not a lot of fiber, vitamins, or minerals. Because junk food doesn't have enough nutrients and has additives, it can't meet the body's nutritional needs. Eating too much of it can lead to fat gain and metabolic problems. Moreover, fast food consumption habits, paired with the habit of eating large amounts and high sugar content, have been recognized as key contributors to the rising incidence of overweight, obesity, and the metabolic syndrome (Fuhrman, 2018; Murthy, Murali, & Bhargava, 2025).

As the popularity of fast food continues to grow, many adolescents today are becoming increasingly inactive. The rise of digital technology—through smartphones, laptops, and gaming consoles—has quietly taken away time that could have been spent moving. Instead of heading outdoors or joining in sports, teens now often find themselves glued to screens for hours on end. This shift toward a sedentary lifestyle doesn't just lead to weight gain; it also affects heart health, muscle development, and overall well-being. When unhealthy eating habits are combined with a lack of physical activity, it creates a harmful cycle that raises the risk of obesity and a range of related health issues(YILDIZ et al., 2025). Numerous research studies have examined separately how fast food consumption and sedentary lifestyle patterns affect obesity among adolescents. Recent research demonstrates that researchers need to treat these factors as interconnected because they often co-occur to impact nutritional status and health outcomes. Today's adolescents choose fast food as their main meal while they also spend prolonged periods looking at their phones and computers and televisions, which leads to mindless eating and larger portion sizes. These behaviors result in sustained positive energy balance, which leads to fat storage, thus creating an increased risk for obesity(Murthy et al., 2025).

On other hand socioeconomic and environmental factors further exacerbate the problem of adolescent obesity. The nutrition transition in low- and middle-income countries has resulted in traditional diets being replaced by western-style processed and fast foods. The process of urbanization together with modifications in built environments has diminished available physical activity opportunities including safe walking paths and

recreational areas and school-based sports activities. People who reside in low-income neighborhoods typically encounter restricted healthy food choices which makes fast food the most convenient and appealing option. The existence of these disparities demonstrates the necessity of examining both environmental factors and structural elements when studying obesity risks.

Researchers have increasingly studied how dietary habits together with lifestyle behaviors and body weight interact among teenagers. Research meta-analysis alongside systematic reviews has provided essential knowledge about fast food consumption and sedentary habits that together or separately cause excessive weight gain (Nurul-Farehah, Rohana, Hamid, Daud, & Asis, 2025). However, the findings are not always consistent. The strength of relationships reported by studies varies because of different research methods which include different age groups and study designs and measurement tools as well as cultural differences and definitions of fast food and sedentary behavior.

Regarding these problems, the purpose of this literature review is to describe the most recent facts from science on the relationship between fast food consumption, sedentary lifestyles, and adolescents obesity. This review aims to give an improved understanding of how modern foods and lifestyles influence adolescent health status by combining data from various population situations and analytical techniques. Understanding and resolving the complex relationships between fast food consumption, sedentary lifestyles, and obesity is needed for backing up adolescents with the necessary information and solutions for living healthy lives.

Method

The research presents a literature review which utilizes both systematic review methodology and narrative review approach (Sultana & Rana, 2025). The study investigates how fast food consumption together with physical inactivity and sedentary lifestyle patterns impact adolescent obesity rates. Researchers used Google Scholar as the main platform to find relevant studies which extended from 2015 to 2025. The search process used the terms junk food and sedentary lifestyle and physical activity and obesity in adolescents. The initial selection process evaluated articles which followed these specific inclusion requirements:

a) Scientific journal articles
b) Covering topics related to fast food consumption, a sedentary lifestyle, physical activity, and obesity
c) Written in Indonesian or English
d) Available in full-text format

Articles that were irrelevant, inaccessible, not available in full version, or written in languages other than Indonesian and English were excluded from the analysis.

Selection and Synthesis Process :

1. Identification
   Articles were identified through Google Scholar search with a publication year range from 2020 to 2025. A total of 880 articles were found using keywords: junk food, sedentary lifestyle, physical activity, and obesity in adolescents.
2. Screening
   Initial screening was conducted to remove duplicate articles, ensure full-text availability, and check for relevance to the topic. Articles were included if they focused on the relationship between junk food, sedentary lifestyle, physical activity,

and obesity in adolescents. After this process, 100 articles were selected for inclusion.

3. Eligibility
   Articles were then assessed against exclusion criteria. Articles were excluded if they were not relevant, not accessible, not available in full text, or not written in English or Indonesian.
4. Included
   Following the eligibility screening, 12 final articles were included for narrative synthesis. Data were extracted and grouped based on key variables relevant to the research question.

Figure 1 demonstrated a flow diagram of article selection compiled based on the PRISMA guidelines to illustrate the process of identification, screening, eligibility assessment, and final inclusion of the articles analyzed.

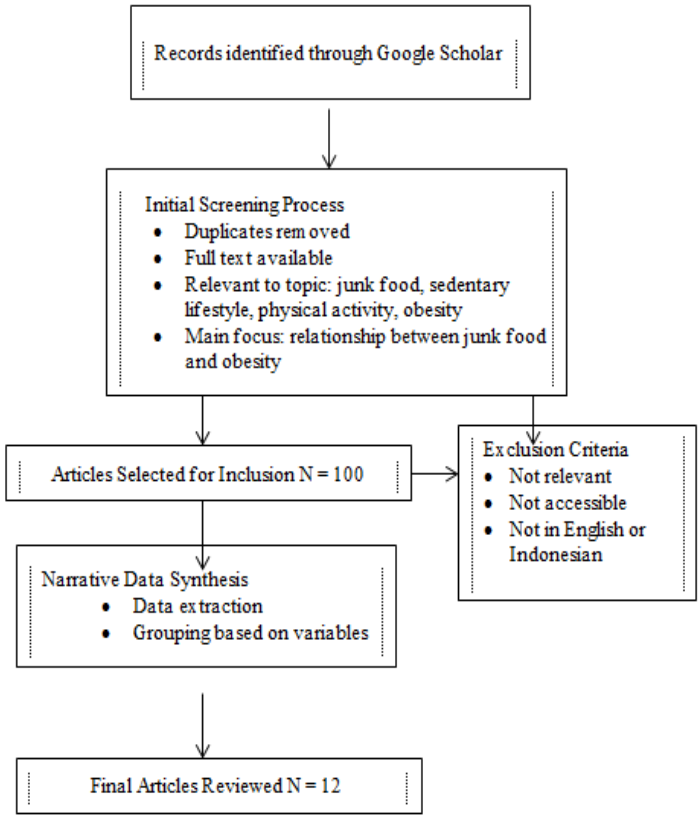

Figure 1. Flow of Article Selection Process

Result and Discussion

1. Result

After applying the inclusion and exclusion criteria to the articles obtained from the electronic databases, twelve (12) articles were selected for the literature review. Table 1 lists all the papers selected for this work, the year of publication, and the type of publication.

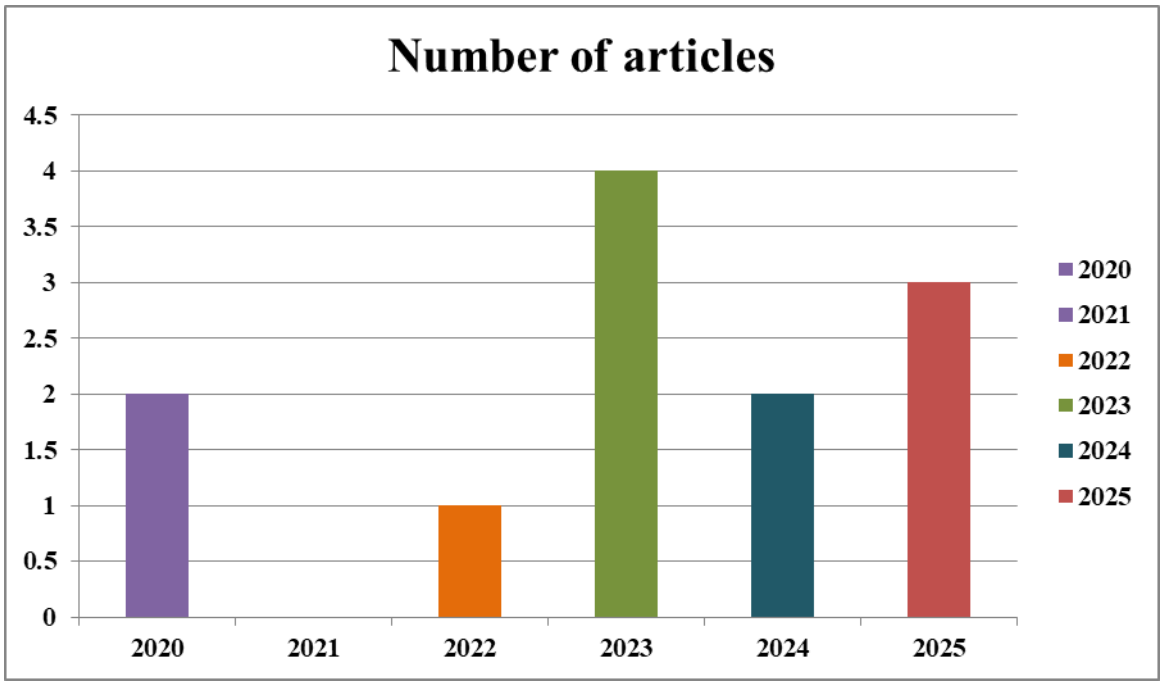

Figure 2. Yearly distribution of chosen articles.

Figure 2 presents the distribution of selected articles by publication year from 2020 to 2025. Overall, articles addressing the topics of fast food, sedentary lifestyle, physical activity, and obesity were found every year during this timeframe, indicating that these issues remain a concern in nutrition and public health research. The highest number of articles was found in 2023, with four articles. Meanwhile, 2020 and 2024 each contributed two articles and 2022 only one article. In 2025 produced three relevant article. Although the number of publications fluctuates annually, the presence of articles in each year demonstrates the consistency of researchers' interest in modern lifestyle issues and their impact on nutritional status. This distribution also reflects the dynamics of scientific attention to fast food consumption patterns and sedentary lifestyles that contribute to the increasing prevalence of obesity, particularly among adolescents and young adults.

Tabel 2.
Research Result

No	Author(s) (Year)	Country	Study Design	Population / Sample	Key Variables	Measurement Tools	Main Findings	Implications / Recommendations
1	Nardone et al. (2020)	Italy	Cross-sectional	58,976 adolescents aged 11, 13, and 15 years	• Breakfast consumption • Fruit intake • Vegetable intake • Legume consumption • Carbonated-sugary drinks • Socio-demographic factors (gender, region, parental education, FAS) • Screen time	• Self-reported HBSC questionnaire • Family Affluence Scale (FAS) • Screen time questions • Dietary frequency questions	A substantial proportion of adolescents skipped breakfast (38.3% of boys and 48.1% of girls), and more than half did not consume fruit and/or vegetables daily. Higher screen time exceeding two hours per day was associated with poorer dietary habits, particularly among adolescents from Southern Italy and those with lower socioeconomic status. In contrast, regular family meals and higher parental education were positively associated with healthier dietary patterns.	• Need for school- and family-based nutrition interventions • Encourage daily breakfast and fruit/vegetable intake • Reduce screen time among adolescents • Policies to limit sugary beverage consumption
2	hen, Chen, & Zhu, 2025	China	Cross-sectional	2,993 children and adolescents aged 6–17 years (4,114 observations)	• Sedentary behavior (screen-based & non-screen) • Sleep duration • Physical activity (LPA, MVPA) • Overweight/obesity status • Sociodemographic factors	• Structured CHNS questionnaires • Physical activity recall questionnaire • Screen-based sedentary behavior questions • Anthropometric measurement (height, weight, BMI)	• Sedentary behavior showed a positive dose–response association with overweight/obesity • Sleep duration and MVPA were inversely associated with overweight/obesity risk • Screen-based sedentary behavior had a non-linear association with obesity risk • Replacing 10 minutes of sedentary behavior with sleep or physical activity reduced obesity risk by 2.3–4.4% • Sleep contributed the greatest protective effect	Reducing sedentary behavior after school should be the main goal of obesity prevention initiatives, along with encouraging enough sleep and exercise. To lower the risk of obesity, time-reallocation measures that substitute sleep or physical exercise for idle time are advised.

3	Fei et al. (2025)	Australia	Cross-sectional	628 autistic children aged 7–12 years	• Screen time • Sleep disturbances • Diet quality • Food selectivity • Covariates: age, sex, ADHD status, household income	• Screen time questionnaire • PROMIS Pediatric Sleep Disturbance Scale • Diet Quality Questionnaire • Brief Autism Mealtime Behavior Inventory	• Higher screen time was associated with increased sleep disturbances • Sleep disturbances were linked to poorer diet quality and higher food selectivity • Screen time indirectly affected food selectivity through sleep disturbances, although the effect size was weak No significant indirect association between screen time and overall diet quality	Nutrition approaches should incorporate screen time reduction and sleep hygiene; family-based behavioral methods are advised to address selective eating; screen time management may enhance sleep and eating patterns in children with autism.
4	Ding et al (2023)	China	Cross-sectional study	Adolescents aged 12–18 years	• Screen time • Physical activity • Sleep duration • BMI status	• Self-reported lifestyle questionnaire • Physical activity recall • Anthropometric measurements	• Higher screen time was associated with increased risk of overweight and obesity • Adequate sleep and higher physical activity were protective against obesity	• Reducing screen-based sedentary behavior should be prioritized • Integrated promotion of sleep and physical activity is essential for obesity prevention
5	(Li, Zhang, & Yan, 2024)	China	Cross-sectional study	Children and adolescents	• Sedentary behavior • Dietary patterns • Physical activity • Obesity indicators	• Lifestyle behavior questionnaire • BMI calculation	• Sedentary lifestyle combined with unhealthy dietary patterns increased obesity risk • Active lifestyle mitigated negative dietary effects	• Obesity interventions should address diet and physical activity simultaneously • Single-behavior interventions may be less effective
6	Mohammadbeigi et al. (2022)	Iran	Cross-sectional	2.588 students (elementary, middle, high school)	Fast food consumption, general obesity, abdominal obesity	Anthropometric measurements (weight, height, WC), dietary questionnaire	Higher frequency of fast food consumption associated with increased prevalence of overweight, general and abdominal obesity	Need for dietary education to reduce fast food intake among students; promote healthy eating patterns early to prevent long-term obesity

7	Lee smith (2024)	Multi-country (Africa, Asia, Americas)	cross-sectional study	Adolescents aged 12–15 years from 18 countries	• Carbonated soft drink consumption • Temporal trends • Regional differences	Global school-based student health surveys	• Soft drink consumption remained high across regions • Increasing trends observed in several low- and middle-income countries	Public health policies should target reduction of sugar-sweetened beverage intake and school-based interventions are strongly recommended
8	Li et al. (2020)	54 Low- and Middle-Income Countries	Cross-sectional (Global School-based Student Health Survey - GSHS)	Adolescents aged 12–15 years (n ≈ 180.000)	Fast food consumption, sex, age, region, socioeconomic background	Standardized self-reported GSHS questionnaire	High prevalence of fast food consumption; associated with urban residence, being male, and higher SES; regional variation significant	Interventions needed targeting fast food reduction, particularly in urban areas and higher SES groups; promote healthy food access for adolescents
9	Maranressy et al. (2023)	Indonesia	Cross-sectional	74 female midwifery students, Respati University Yogyakarta	Fast food consumption, physical activity, central obesity (waist circumference)	Food Frequency Questionnaire (FFQ), International Physical Activity Questionnaire (IPAQ), anthropometric measurements	Significant association found between fast food consumption and central obesity; low physical activity also contributed to obesity risk	Need for campus-based nutrition education and activity programs to reduce fast food consumption and promote active lifestyle among female students
10	Sitorus et al. (2023)	Indonesia	Cross-sectional	100 adolescents in Kelurahan Subang Jaya	Junk food consumption, physical activity, obesity status	Food Frequency Questionnaire (FFQ), Physical Activity Questionnaire, BMI measurements	Significant relationship between frequent junk food intake and obesity; low physical activity also significantly associated with higher obesity risk	Important to enhance awareness among adolescents and parents about healthy eating and the importance of regular physical activity; community-based interventions recommended
11	Ariyanto et al. (2023)	Indonesia	Cross-sectional	98 adolescents	Physical activity, fast food intake, fruit &	Food Frequency Questionnaire	Low physical activity and frequent fast food consumption significantly associated with	Holistic interventions combining dietary guidance and promotion of physical

					vegetable intake, obesity status	(FFQ), Physical Activity Questionnaire, anthropometry (BMI)	obesity; adequate fruit and vegetable intake linked to lower obesity prevalence	activity are recommended to prevent adolescent obesity
12	Rakhman et al. (2025)	Indonesia	Cross-sectional	Students of Madrasah Aliyah Alkhairaat, Palu	Fast food consumption, sedentary lifestyle, physical activity, BMI	FFQ, Sedentary & Physical Activity Questionnaires, anthropometry (BMI)	Fast food intake and sedentary lifestyle significantly associated with higher BMI; physical activity inversely related to BMI	Strengthen post-pandemic nutrition and activity education in schools; reduce sedentary time and fast food access among adolescents

2. Discussion

Obesity among adolescents is becoming an increasing health issue in both developed and developing countries. According to a comprehensive evaluation of twelve scientific studies, fast food intake, sedentary lifestyle, and inadequate physical activity are the primary contributors to the increased risk of obesity in teenagers. These three elements are tightly connected and mutually reinforce one another, resulting in an obesogenic environment for teenagers.

A review of twelve articles found a consistent link between fast food consumption, sedentary lifestyle, low physical activity, and an increased risk of obesity in adolescents. Adolescents who eat fast food on a regular basis frequently eat too much energy due to the high calorie, saturated fat, sodium, and added sugar content of these foods, while their fiber and micronutrient content is low. A sedentary lifestyle characterized by excessive screen time, such as watching television, playing games, or passively utilizing electronics, correlates to lower daily energy expenditure and an increased proclivity to snack on unhealthy foods. This illness is compounded by adolescents low levels of physical activity, which cause a persistent energy imbalance and, eventually, the buildup of body fat. When these three elements occur simultaneously and constantly, they establish a mutually reinforcing behavioral pattern that contributes significantly to the rising prevalence of obesity in teenagers. This pattern is consistent in both developed and developing countries, including Indonesia, demonstrating that while this is a global issue, interventions must be tailored to the local context.

According to the majority of the articles reviewed, regular fast food consumption is a significant risk factor for obesity in adolescents (Ariyanto, Fatmawati, & Efni, 2024; Mohammadbeigi et al., 2022; Rachmadini, Damayanti, Pardilawati, & Sukohar, 2025; Yesica Tiur Maulina Sitorus, Teten Tresnawan, 2023) all support the result that excessive fast food consumption is directly connected to a higher body mass index (BMI) and an increased prevalence of general and abdominal obesity. Physiologically, fast food is high in calories but low in key micronutrients. High quantities of saturated fat, salt, and sugar, along with high, often unintentional portion sizes, contribute to excessive daily energy consumption. This intake is frequently paired with sugary beverages, increasing the risk of energy imbalance. Rapid and impulsive eating causes this by delaying the brain's satiety signal. International research, such as (Nardone, Pierannunzio, Ciardullo, & Lazzeri, 2020; Smith et al., 2024) revealed that the trend of high fast food consumption among adolescents is global, with a higher prevalence in metropolitan locations and upper-middle socioeconomic categories. This is due to widespread availability, low prices, and extensive exposure to advertising, particularly via digital media. These findings highlight the fact that fast food intake is driven by an obesogenic food environment as well as human behavioral choices. As a result, avoiding teenage obesity necessitates a multifaceted strategy that includes education, regulation, and structural changes.

A sedentary lifestyle is a risk factor for adolescent obesity (Ashdown-Franks et al., 2019; Chen, Chen, & Zhu, 2025; Ding et al., 2022; Fei et al., 2025) discovered that prolonged sedentary time, particularly screen time (such as watching TV, playing games, and using computers/devices), is associated with higher consumption of unhealthy foods and lower consumption of fruits and vegetables. (Ding et al., 2022) found that higher screen time was associated with increased risk of overweight and obesity and adolescent who have adequate sleep and higher physical activity were protective against obesity. It is referred to as screen snacking behavior, which is the practice of eating energy-dense

meals while watching visual media, which typically shows commercials for high-calorie goods. This is consistent with the findings research by (Rakhman, Hamid, Nurulfuadi, Nadila, & Aiman, 2025) who found a link between sedentary behavior and higher BMI. A sedentary lifestyle not only reduces energy expenditure, but it also stunts muscle mass development and metabolism. With adolescents' increasing use of digital devices, interventions to reduce screen time are difficult to implement and require the involvement of families, schools, and media policymakers.

In addition to these three primary components, this review discovered that social, economic, and nutritional literacy factors influence teenage behavior. Adolescents from low-education and low-income households have limited access to knowledge, healthy dietary options, and exercise facilities. This is congruent with the findings of (Li et al., 2024; Wadolowska et al., 2018) who found that a low level of nutritional knowledge is associated with a high consumption of processed and fast meals, as well as a poor intake of fruits and vegetables. Overall, the findings of this investigation highlight the necessity of taking a comprehensive approach to obesity prevention in adolescents. Nutrition education, physical activity promotion, and management of obesogenic surroundings, such as fast food advertising directed at children and adolescents, are all necessary components of effective programs. Furthermore, policy support is required to increase access to healthy foods and physical activity spaces, especially in schools and community settings.

Conclusion

The conclusions of this study show that high fast food consumption and a sedentary lifestyle are significant contributors to the rising prevalence of obesity in adolescents, particularly during the nutritional transition, which is characterized by transforming dietary patterns and less physical activity. These findings underline the importance of addressing teenage lifestyle changes in obesity prevention programs. However, the research's shortcomings stem from the range of study designs, methodological methods, and the prevalence of observational studies, which restrict generalization and the ability to make full causal findings.

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