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## Sugar-Sweetened Beverage Consumption, Contributing Factor, and Weight Outcomes in Adolescents: A Scoping Review



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### Article Information

### Abstract

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High consumption of sugar-sweetened beverages (SSBs) is strongly associated with adolescent obesity and related conditions, including type 2 diabetes and cardiovascular disease. This pattern is driven by easy access, low cost, and aggressive marketing, especially in developing countries. Understanding the determinants of SSB intake and its effects on weight is essential for guiding public health strategies. This study investigated sugar-sweetened beverage (SSB) consumption among adolescents and its link to weight-related outcomes. Findings showed that higher SSB intake was associated with greater body weight and obesity risk, influenced by accessibility, social factors, low health awareness, psychological stress, and sedentary lifestyles. A scoping review was conducted using PubMed, Scopus, Embase, MEDLINE (Ovid), and Web of Science, with additional manual searches via Google Scholar. Keywords included “Adolescents,” “Sugar-Sweetened Beverages,” and “Obesity.” Studies were included if they involved adolescents consuming SSBs. A total of 34 studies with 218,767 adolescent participants were analyzed. SSB consumption varied and was influenced by factors such as availability at home and school, peer influence, and health knowledge. High intake was consistently linked to increased obesity risk, with frequent consumers showing higher BMI. Reducing SSB access at home and school, along with improving awareness, emerged as important strategies to limit adverse health impacts. Elevated SSB consumption among adolescents is closely linked to overweight and obesity. Targeted interventions, including early screening, educational initiatives for adolescents and parents, and policies restricting availability in schools and communities, are needed to reduce intake and associated health risks.

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## INTRODUCTION

Sugar-sweetened beverages (SSB) are drinks containing added sugars such as high-fructose corn syrup, sucrose, or concentrated fruit juices that provide a sweet taste. Excessive SSB intake among adolescents has emerged as a serious global health problem, contributing significantly to obesity, type 2 diabetes, and dental caries ([V. S. Malik & Hu, 2019](#)). Findings from recent evidence synthesis indicate that high SSB consumption among adolescents is not only frequent but influenced by multiple factors, including easy accessibility at home and school, peer influence, low health awareness, and sedentary behavior ([Ra & Kim, 2025](#)). Therefore, understanding these determinants is essential to address the increasing trend of SSB intake and its contribution to adolescent obesity ([Calcaterra et al., 2023](#)).

The study involved participants from two large cohorts: the Nurses' Health Study (121,700 women aged 30 to 55 years) and the Health Professionals Follow-up Study (51,529 males aged 40-75 years), all of whom were free from chronic diseases at the start of the study and were followed for up to 34 years. Data on lifestyle, health, and diet were collected every two years.

Additionally, a significant amount of evidence has associated the habit of consuming Regular intake of sugar-sweetened beverages (SSBs) is associated with weight gain and an elevated risk of type 2 diabetes, cardiovascular illnesses, and various cancers, in comparison to occasional SSB consumption. In 2016, Approximately 1.9 billion persons globally were classified as overweight or obese, with SSB being one of the leading causes of high-calorie intake ([V. S. Malik & Hu, 2019](#)).

Global estimates suggest SSB consumption exceeds recommended sugar intake guidelines by 38%–75% for young children and 62%–124% for adolescents ([Ooi et al., 2022](#)). In Southeast Asian countries, a survey conducted in Malaysia showed that almost all (98.0%) teenagers consume some sweetened beverages. The average sweetened beverage consumed is around 1.4 cups/day ([Salleh et al., 2021](#)). Indonesia ranks third highest in the

consumption of packaged sweetened beverages, at 20.23 liters per person per year. The affordable price and easy access to packaged sweetened beverages are the reasons for the high consumption of sweetened drinks, especially in developing countries ([Ferretti & Mariani, 2019](#)).

The utilization of sugary calorie beverages (SSB) among children and adolescents can lead to various adverse health impacts. The onset of obesity and overweight is attributable to infancy and adolescence several factors, one of which is unbalanced eating behavior ([Atar & Hizli-Guldemir, 2025](#)). The eating patterns of children and adolescents have changed significantly over time, placing more emphasis on high-calorie snacks and beverages, which has increased the danger of excess weight and obesity ([Mohd Saat et al., 2023](#)).

Research conducted by ([Valenzuela et al., 2021](#)) shows that individuals who ingest SSB in substantial amounts (daily or many times weekly) possess a higher chance of experiencing dental caries and erosion, as well as a higher rate of caries than those who consume them in infrequent quantities (fewer than biweekly). Additionally, high consumption of SSB has been associated with a heightened risk of premature mortality in adults ([V. S. Malik et al., 2019](#)).

Considering the significant community health implications, it is essential to comprehend SSB consumption patterns further and develop effective interventions. Efforts to reduce the utilization of sugary calorie beverages (SSB) among children and adolescents are crucial for improving their health ([Cruz et al., 2025](#)). Some strategies that can be implemented include Enhancing public service advertisements on television regarding healthy living by minimizing sugar, salt, and fat intake ([Daeli & Nurwahyuni, 2019](#)), restricting the accessibility of sugar-sweetened beverages, particularly in proximity to educational institutions ([Hollands et al., 2019](#)), and guaranteeing the accessibility of more nutritious options beverages within academic institutions, medical facilities, grocery stores, and dining establishments ([Al-Khudairy et al., 2019](#)).

Previous studies have identified the

association between sugar-sweetened beverage (SSB) utilization and adverse health results. However, most of these studies have focused only on consumption patterns or health impacts separately, without comprehensively analyzing the determinants of SSB consumption behavior among adolescents (Qin et al., 2020). The social, environmental, and psychological aspects that influence SSB consumption in adolescents have not been explored in depth, especially in developing countries like Indonesia, which have high consumption rates due to affordability and easy access to these beverages (Qin et al., 2020).

Previous studies have tended to examine general populations, with minimal research specifically investigating consumption patterns in adolescent groups during their critical developmental period. This limitation becomes significant because consumption habits formed during adolescence potentially continue into adulthood. Although several interventions to reduce SSB consumption have been implemented, comprehensive evaluations of the effectiveness of these strategies for adolescents in diverse socioeconomic contexts remain insufficient (Ooi et al., 2021). Based on our knowledge, research synthesizing current evidence regarding SSB consumption patterns in adolescents, contributory factors, and their impact on weight-related outcomes is still limited (English et al., 2022; Yu et al., 2023). Consequently, this scoping review seeks to fill this void.

Therefore, the scoping review aims to synthesize evidence on sugar-sweetened beverage

(SSB) consumption, its contributing factors, and its relationship with weight-related outcomes among adolescents to inform more targeted prevention strategies.

## METHODS

### *Study Design*

The study was designed as a systematic scoping review. Scoping reviews are a form of evidence synthesis that seeks to ascertain and outline the extent of evidence accessible regarding a specific subject, concept, domain or concern (Munn et al., 2022). The structure has five key steps: identifying research inquiries, identifying pertinent studies, choosing studies, charting data, and collating, summarizing, and documenting findings (Bradbury-Jones et al., 2022). This literature study used the PRISMA Extension for Scoping Reviews as a guide for reporting scoping reviews (PRISMA-ScR).

### *Search Method*

This literature was searched from five databases: PubMed, Scopus, Embase, MEDLINE (Ovid), and Web of Science. A manual search using Google Scholar was also used. This research began by formulating the research question using the PCC approach (population, concept, and context). The population was adolescents; the concept was sugar-sweetened beverages, while the contents were contributing factors and weight-related outcomes (Table 1). Next, we conducted a literature search from the databases using keywords, MeSH, and Boolean operators "Sweet Sugar Beverages," "Adolescents," and "Obesity" or "Obese" (Table 1).

**Table 1. Of Search Strategy**

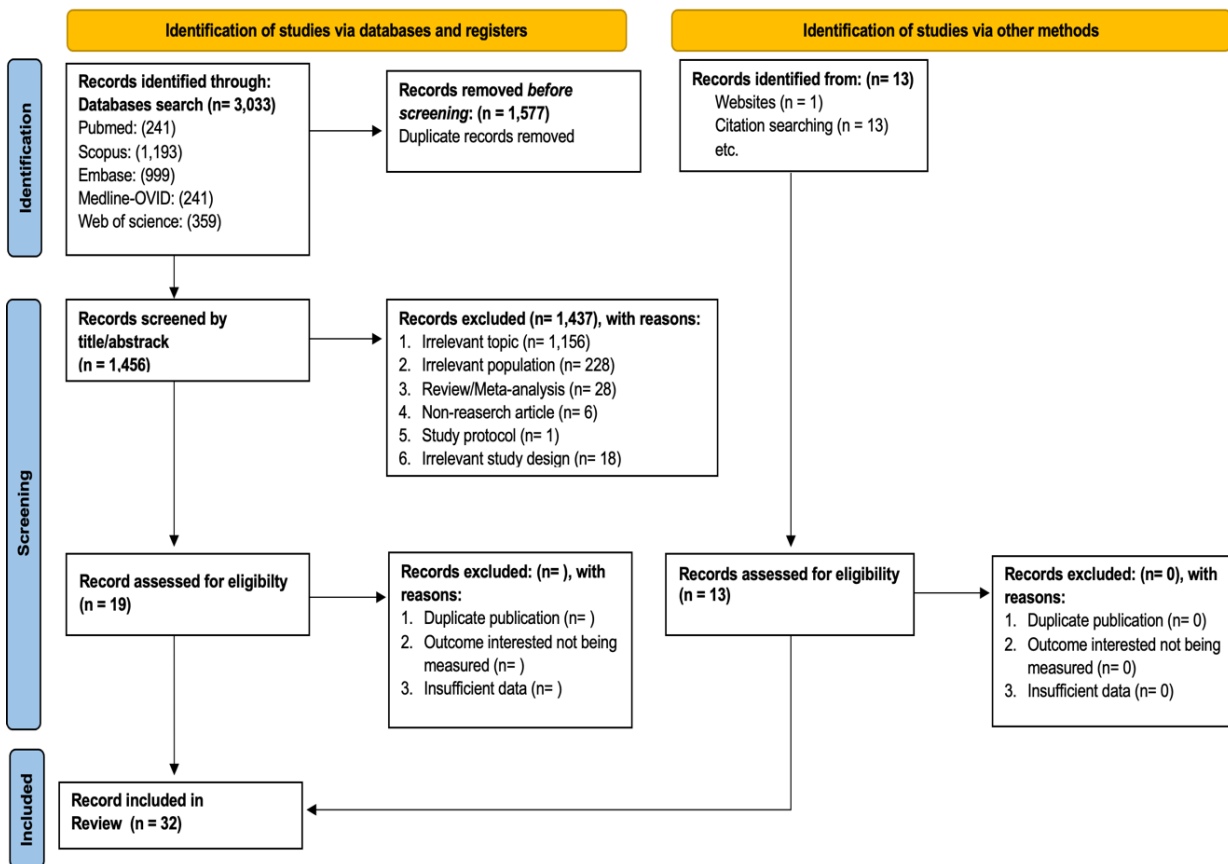
Databases	Keywords
Pubmed	"Adolescents" AND "Sugar-Sweetened Beverage Consumption" AND "Weight outcomes"
Embase	"Adolescent" OR "Teenager" OR "Adolescents" AND "Sugar-Sweetened Beverage consumption" OR "Sugar-sweetened beverages" AND "Obesity" OR "Overweight" OR "Childhood obesity" AND "Weight outcomes" OR "Dietary intake" OR "Nutritional behavior" OR "Caloric intake" OR "Sugar intake" OR "Snacking behavior" OR "Dietary patterns"
Scopus	(TITLE-ABS-KEY ("Sugar-Sweetened Beverages" OR "SSB" OR "Soft Drinks")) AND "Adolescents" AND "Obesity" OR "Overweight" OR "Childhood obesity" AND "Weight outcomes" OR "Dietary habits" OR

"Nutritional behavior") AND (LIMIT-TO (DOCTYPE, "ar"))

**Eligibility Criteria and Study Selection**

This scoping review included studies published between 2016 and 2025. Only studies published in English were considered for inclusion. Studies were selected based on their relevance to the research questions regarding sugar-sweetened beverage consumption, its contributing factors, and its relationship with weight-related outcomes among adolescents. We included studies in this scoping review if they involved adolescents (ages 10-19) and focused on

sugar-sweetened beverage (SSB) consumption and weight results. Eligible study designs were primarily cross-sectional, along with cohort studies, randomized controlled trials (RCTs), and qualitative research. These studies had to evaluate the relationship between SSB consumption and weight or obesity in adolescents. Studies unrelated to these factors or focusing on different topics were excluded, along with study protocols, systematic reviews, and meta-analyses (Figure 1).



**Figure 1. Prisma Flow Diagram**

**Data Extraction and Analysis**

The authors will thoroughly screen articles that meet the inclusion criteria, examining the abstract, research objectives, methodologies, and results before extracting them using a manual table. The table will include the following information: authors, year of publication, nation, research design, sample size, characteristics of the study SSB

consumption, and contributing factors. Following this, the impact of SSB consumption on weight outcomes in adolescents will be categorized according to comparable effects, and these results will be further explained in (Table 3).

Data extraction was conducted in accordance with the PRISMA-ScR guidelines. Articles were screened in three stages—by title, abstract, and full

text—based on predefined inclusion criteria. Essential information, including study design, sample size, participant characteristics, types of SSB consumption, and their associations with weight outcomes, was collected using a structured extraction form. A manual search through Google Scholar complemented the database search to identify additional relevant studies. The extracted data were synthesized by categorizing studies according to outcomes and influencing factors, particularly those related to BMI, obesity, and other health indicators. Results were verified for consistency and summarized narratively in [Table 3](#) to ensure clarity, transparency, and methodological rigor.

## RESULTS

### Description Of Study

We retrieved 3,033 studies from electronic databases, and 1,577 duplicate studies were first excluded. After that, 19 papers were eligible for additional full-text screening after 1,456 studies were screened by title and abstract. Next, we added 13 studies from a manual search in Google Scholar. Finally, 32 studies with 202,234 participants published between 2016 and 2025 were analyzed. The majority of included studies were cross-sectional studies (25 studies), Most of the participants were female (51.89%), the mean age was 14.51 (1.68), and the majority of studies came from Western Pacific and Americas countries (48.98%, and 40.68%, respectively) ([Table 2](#) and [3](#)).

**Table 2. Demographics of Included Studies**

Category	Number of Studies	Number of Participants	Mean (Sd)
<b>Sample Size</b>	32	202,234	
<b>Age (Years)</b>	32		14.51 (1.68)
<b>Sex</b>			
Male	32	97,292 (48.11%)	
Female	32	105,771 (51.89%)	
<b>Country Geographical Area</b>			
Africa	0	0	
Americas	16	82,268 (40.68%)	
Eastern Mediterranean	0	0	
Europe	1	870 (0.43%)	
South-east Asia	5	12,773 (5.84%)	
Western Pacific	10	107,118 (48.98%)	
<b>Study Design</b>			
Cross-Sectional	25	200,407 (99.10%)	
Cohort	1	450 (0.21%)	
Qualitative	3	496 (0.23%)	
RCT	3	1,244 (0.57%)	

The type of consumption analyzed primarily focused on drinks sweetened with sugar (SSBs), with the rate of consumption varying between 1 and more than 7 times per week, depending on the study. SSB consumption among adolescents varied significantly across studies. Many studies recorded relatively high consumption levels. For instance, ([Sampasa-Kanyinga et al., 2017](#)) in Canada reported

that 81.4% of participants consumed SSBs in the past week. Other studies, such as ([Skeie et al., 2019](#)) in Norway, discovered that 61.3% of males and 32.2% of females consumed SSB daily. Additionally, some studies reported significant caloric intake from SSBs, as seen in ([C. Q. Zhang et al., 2019](#)) in Hong Kong, where the mean caloric consumption from SSBs was 157.93 kcal per day.

Weekly consumption was also notably high, with ([Godin et al., 2017](#)) reporting soda consumption about 2.58 days per week in Guatemala.

Based on the data analysis results, SSB consumption among adolescents is strongly influenced by various social, environmental, psychological, and health knowledge factors ([Table 3](#)). The elements influencing sugar-sweetened beverage consumption are varied and related to social, psychological, and health knowledge aspects. The presence of SSBs in the household and educational institution is a key factor influencing adolescents' SSB consumption habits. Studies like ([Zhu et al., 2021](#)) in China and ([Sampasa-Kanyinga et al., 2017](#)) in Canada found that the more SSBs available at home or sold in schools, the higher the likelihood of consumption.

Parental and peer influence also played a significant role in shaping adolescents' consumption habits. ([Bailey-Davis et al., 2022](#)) demonstrated that when parents allow their children to consume SSBs on certain days, it significantly increases the likelihood of their children consuming SSBs. Psychosocial factors, such as loneliness and stress, were also linked to higher SSB consumption. ([Doan et al., 2022](#)) found that adolescents who felt lonely tended to consume more SSBs, highlighting the emotional impact on eating habits. Additionally, health knowledge played an important role. ([S. Park et al., 2023](#)) showed that adolescents who were more aware of health hazards associated with the consumption of sugar-sweetened beverages, including obesity and diabetes, were more likely to reduce their intake. Conversely, less informed adolescents about the health impacts tended to consume more SSBs.

Most studies reported that a normal Body Mass Index (BMI) was the most common category among participants. BMI, calculated from body weight and height, was consistently applied across the included studies as a standard indicator of nutritional status. In general, participants were divided into four categories: underweight, normal, overweight, and obese. For adults, the normal BMI range is generally considered to be 18.5–24.9 kg/m<sup>2</sup>, while for adolescents, classification is usually based

on age- and sex-specific percentiles, with normal BMI corresponding to approximately the 5th to 85th percentile. Nevertheless, the specific criteria varied depending on the reference adopted in each study.

Across the included studies, the average proportion of participants with a normal BMI was around 60–65%, while overweight and obesity were reported in about 18% and 17%, respectively. For example ([Ha et al., 2016](#)), found that more than 78% of adolescents in Korea were within the normal BMI range, whereas ([Wattelez et al., 2019](#)) in New Caledonia reported that only a minority were classified as normal because 42.7% were overweight and 59.7% were obese. This illustrates a double burden: although many adolescents remain within the normal range, a substantial proportion are already overweight or obese, highlighting the increasing concern of excess weight in younger populations.

Further evidence has demonstrated a link between sugar-sweetened beverage (SSB) intake and BMI status. ([Gan et al., 2019](#)) in Malaysia, for instance, observed that higher SSB consumption was associated with longer screen time, poorer sleep quality, and greater energy imbalance—all of which contribute to overweight and obesity. These findings suggest that frequent SSB consumption may be one of the contributing factors underlying the high prevalence of excess weight reported in several studies. Similarly ([Chiu et al., 2020](#)), in the USA reported that frequent soda consumption was tied to unhealthy eating habits and more sedentary behavior, each of which is a known obesity risk factor. In Norway, ([Skeie et al., 2019](#)) observed significant daily SSB consumption among adolescents, correlating utilizing a higher frequency of overweight and adiposity. Additionally, ([Gui et al., 2017](#)) in China discovered that a high intake of SSB was linked to an elevated risk of abdominal obesity. These findings suggest that the BMI category is closely related to SSB consumption habits, with higher SSB intake typically observed in individuals with higher BMI, particularly those who are overweight or obese.

**Table 3. Extraction Data**

No	Authors (Year), Country, Study Design	Characteristics of participant (n, %), (m, SD)	Information of Study	Result	
				SSB Consumption	Description of Result
1	( <a href="#">C. Q. Zhang et al., 2019</a> ); Hong Kong; Cohort	Sample size: 450 Age (years): 12-17 Gender: M: 227 (50.4%) F: 223 (49.6%) BMI: NI	The study utilized an augmented variant of the Health Action Process Approach. (HAPA) to forecast adolescent Consumption of SSB.	Total calorie intake (kcal) (Mean, Standard Deviation): 1735.96 (1063.82) Total calorie intake from sugar (kcal): 130.64 (88.37) Consumption of sugary snacks as a percentage of daily calorie intake: 14.93 (7.28) Consumption of total sugar- sweetened beverages (g): 363.52 (367.11) Consumption of total sugar- sweetened beverages (kcal): 157.93 (157.98) Frequency of lunch purchases from the school cafeteria (5 days/week): 198 (19.0%)	The study found that intentions and perceived affordability significantly predicted SSB consumption. However, past behavior had the most potent effect on SSB consumption, with intention and planning variables showing weaker effects in the model.
2.	( <a href="#">K. Zhang et al., 2023</a> ); Canada; Cross-sectional	Sample size: 1,031 Age (years): 13-18 Gender: M: 420 (41%) F: 611 (59%) BMI: NI	The study investigated the correlation between teenagers' social jetlag and sugar-sweetened beverage consumption, emphasizing gender disparities. The disparity between weekday and weekend sleep times	84% of adolescents reported consuming SSB; Boys had higher SSB intake than girls.	Adolescents who experienced social jetlag for 1–2 hours were 65% more likely to consume SSB, while those who experienced social jetlag for more than 2 hours were 87% more likely to consume SSB, particularly with females.

		determined social jetlag.			
3.	( <a href="#">C. W. Wang &amp; Chen, 2022</a> ) ; Taiwan; Cross-sectional	Sample size: 633 Age (years): 13-16 Gender: M: 307 (48.5%) F: 326 (51.5%) BMI: Normal: 398 (62.9%) Overweight: 69 (10.9%) Obese: 99 (15.6%) Household income (\$/year): NI	This study investigated the determinants of sugar-sweetened beverage consumption among adolescents, emphasizing knowledge, self-efficacy, and perceived advantages/obstacles by structural equation modeling.	Mean SSB consumption: 1216.82 ml (SD: 960.83)	The study revealed that self-efficacy markedly diminished the consumption of sugar-sweetened beverages (SSB) while perceived benefits increased consumption, especially in male adolescents. Awareness of SSB had no direct impact on consumption but affected perceived obstacles.
4.	( <a href="#">Rocha et al., 2021</a> ) ; Brazil; Cross-sectional	Sample size: 71,475 Age (years): 12-17 Gender: M: 35,610 (49.8%) F: 35,865 (50.2%) BMI: NI	The study explored the association between adolescents' educational food milieu (e.g., drinking fountains, soft drink sales, and advertising) and SSB consumption.	Public schools: 68.3%; Private schools: 74.6%	The study found that schools selling soft drinks had higher average SSB consumption among adolescents, highlighting the need for better regulation of food and beverage sales in schools to reduce unhealthy consumption.
5.	( <a href="#">Sampasa-Kanyinga &amp; Chaput, 2016</a> ) ; Canada; Cross-sectional	Sample size: 1,147 Age (years): 11-19 Gender: M: 514 (44.9%) F: 633 (55.1%) BMI: Normal: 866 (75.6%) Overweight: 177 (15.5%) Obese: 102 (8.9%) Household income (\$/year): NI	The study investigated the correlation between compliance with physical activity (PA) and screen time (ST) guidelines and the intake of sugar-sweetened beverages (SSB) and energy drinks (EDs) among adolescents.	78.6% reported drinking SSB; 37.6% reported consuming EDs	Adherence to Screen time guidelines was adversely correlated with consuming sugar-sweetened beverages and energy drinks among females. Compliance with physical activity guidelines was positively correlated with energy drink consumption in females.

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| 6. ( <a href="#">Beaulieu et al., 2020</a> ); Canada; Cross-sectional | <p>Sample size: 311<br/>                 Age (years): 13-18<br/>                 Gender:<br/>                 M: 148 (47.6%)<br/>                 F: 163 (52.4%)<br/>                 BMI:<br/>                 Normal: 235 (75.6%)<br/>                 Overweight: 48 (15.5%)<br/>                 Household income (\$/year): NI</p>  | <p>This study aimed to identify the psychosocial and environmental factors influencing teenagers' intention to refrain from consuming sugar-sweetened beverages their actual consumption. The Reasoned Action Approach (RAA) was used.</p>              | <p>Mean SSB consumption: 882.6 ml/day (654.0 kJ/day)</p>                | <p>Self-identity, perceived norm, and attitude were markedly correlated to refrain from SSB, while consumption was influenced by intention, perceived behavioral control, and socio-economic status. High variations in SSB consumption were noted, contingent upon sex, socio-economic status, and school environment.</p> |
| 7. ( <a href="#">Salleh et al., 2021</a> ); Malaysia; Cross-sectional | <p>Sample size: 2,021<br/>                 Age (years): 10-17<br/>                 Gender:<br/>                 M: 1,011 (50%)<br/>                 F: 1,010 (50%)<br/>                 BMI:<br/>                 Normal: 1,277 (63.2%)<br/>                 Overweight: 316 (15.6%)<br/>                 Obese: 285 (14.1%)<br/>                 Household income (\$/year): NI</p> | <p>The study examined sociodemographic variables linked to sugar-sweetened beverage (SSB) Consumption patterns among Malaysian teens. Data were extracted from the 2017 Adolescent Nutrition Survey, a nationally representative sample.</p>            | <p>Median SSB consumption: 345.1 mL/day (1.4 cups)</p>                  | <p>Rural adolescents and males had significantly higher SSB consumption than their urban and female counterparts. Ethnic differences in consumption were observed, with Bumiputra Sarawak adolescents having the highest intake.</p>  |
| 8. ( <a href="#">Skeie et al., 2019</a> ); Norway; Cross-sectional    | <p>Sample size: 870<br/>                 Age (years): 15-17<br/>                 Gender:<br/>                 M: 444 (51%)<br/>                 F: 426 (49%)<br/>                 BMI:<br/>                 Normal: 344 (39.5%)<br/>                 Overweight: 316 (19.3%)<br/>                 Obese: 285 (23.7%)</p>   | <p>The study evaluated teenagers' daily intake of sugar-sweetened drinks (SSB) from Tromsø, Norway. It also explored factors associated with daily SSB consumption, including socio-economic factors, dietary habits, and health-related behaviors.</p> | <p>61.3% of males and 32.2% of females reported drinking SSB daily.</p> | <p>The study identified various factors influencing daily SSB consumption, with males and vocational students exhibiting the highest intake. Consumption was linked to additional dietary practices, such as consuming snacks, ingesting fruit juice, and</p>   |

		Household income (\$/year): NI		using snuff. These findings suggest that targeting these behaviors in intervention programs could help reduce SSB consumption.
9.	( <a href="#">Teng et al., 2020</a> ); Malaysia; Cross-sectional	<p>Sample size: 439            Age (years): 13-17            Gender:              M: 218 (49.7%)              F: 221 (50.3%)            BMI:              Normal: 245 (55.8%)              Overweight: 81 (18.5%)              Obese: 74 (16.9%)            Household income (\$/year): NI</p>	The study investigated the knowledge, attitudes, and behaviors (KAP) of adolescents' sugar sweetened beverages (SSB) intake in Selangor, Malaysia.	25.5% of adolescents drank sugar-sweetened beverages daily, with caffeinated drinks and whole milk being the most prevalent SSB.
10	( <a href="#">Doan et al., 2022</a> ); USA; Cross-sectional	<p>Sample size: 158            Age (years): 15.13 (2.27)            Gender:              M: 68 (43.04%)              F: 90 (56.96%)            BMI: NI</p>	The research was centered on the relationship between loneliness and adolescents' craving for sugar-sweetened beverages (SSB).	The average teenager consumes SSB: 38.27 (SD: 38.22)
				The study showed that while adolescents had a good attitude about reducing SSB consumption, their actual practices did not align with this awareness. The study also found socio-demographic factors such as income, gender, and school location to influence KAP levels.
				The study found that loneliness was significantly linked to increased cravings for SSB among adolescents, independent of other adverse feelings, including stress or melancholy. Family functioning did not mitigate the influence of loneliness on these cravings, suggesting that other factors may be more influential in mitigating this effect.

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| <p>11. (<a href="#">Fajarini et al., 2021</a>)<br/>; USA; Cross-sectional</p>            | <p>Sample size: 437<br/>Age (years): 9–14<br/>Gender:<br/>M: 200 (54.23%)<br/>F: 237 (45.77%)<br/>BMI:<br/>Normal: 224 (51.38%)<br/>Overweight: 98 (22.48%)<br/>Obese: 114 (26.15%)<br/>Household income (\$/year): NI</p> | <p>The investigation investigated the psychosocial determinants affecting the intake of sugar-sweetened drinks (SSB) and confectionery among African American teenagers in Baltimore.</p>        | <p>Total caloric intake (kcal): 1735.96 (M, SD: 1063.82)<br/>Total calorie consumption from sugar (kcal): 130.64 (88.37)<br/>Proportion of sweet snacks consumption (% of daily calorie intake): 14.93 (7.28)<br/>Consumption of total sugar-sweetened beverages (g): 363.52 (367.11)<br/>Consumption of caloric-sweetened beverages (kcal): 157.93 (157.98)</p> | <p>The study highlighted that psychosocial factor, such as self-efficacy and intentions toward healthy eating, indicated increased consumption of sugary snacks and sugar-sweetened beverages. Despite the absence of a direct correlation with weight status, the findings suggest that improving self-efficacy and food intentions could be key targets for interventions to reduce adolescents' sugary food and beverage intake.</p> |
| <p>12. (<a href="#">Watts et al., 2018</a>);<br/>USA; Cross-sectional</p>                | <p>Sample size: 2,793<br/>Age (years): 14.4 (2.0)<br/>Gender:<br/>M: 1,300 (46.8%)<br/>F: 1493 (53.2%) BMI: NI</p>   | <p>This study identified factors that influence adolescents' ingestion of SSB in various environments, encompassing personal, familial, social, educational, communal, and media situations.</p> | <p>Mean SSB consumption: 0.82 servings/day (SD = 0.94, range: 0–4.7)</p>   | <p>The consumption of fast food and the availability of soda at home were significantly correlated with increased intake of sugar-sweetened beverages. In contrast, participation in good weight management practices and parental role modeling were associated with lower intake.</p>   |
| <p>13. (<a href="#">Sampasa-Kanyinga et al., 2017</a>)<br/>; Canada; Cross-sectional</p> | <p>Sample size: 9,473<br/>Age (years): 11-20<br/>Gender:<br/>M: 4,914 (51.7%)<br/>F: 4,559 (48.3%) BMI: NI</p>   | <p>The investigation investigated the correlation between the duration of sleep and the intake of energy drinks (EDs) and sugar-sweetened beverages (SSBs) among</p>                             | <p>81.4% of participants reported consuming SSB in the past week. 12.0% reported consuming EDs in the past week.</p>   | <p>Reduced sleep duration correlated with a heightened likelihood of consuming sugar-sweetened beverages among middle school students and energy drinks</p>   |

adolescents.

among middle and high school students.

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| 14. ( <a href="#">Wattelez et al., 2019</a> )<br>; France; Cross-sectional | Sample size: 447<br>Age (years): 11-16<br>Gender:<br>M: 194 (43.4%)<br>F: 253 (56.6%)<br>BMI:<br>Normal: 289 (71.6%)<br>Overweight: 96 (42.7%)<br>Obese: 62 (59.7%)<br>Household income (\$/year):<br>NI | This inquiry assessed the consumption of sugar-sweetened drinks (SSB) and its relationships with sociodemographic factors, behavior, and knowledge among adolescents in New Caledonia.                                  | SSB consumption (L/week):<br>Urban = 1.94 L/week, Rural = 4.49 L/week; Melanesians = 4.77 L/week, Caucasians = 2.46 L/week.               | Consumption of sugar-sweetened beverages (SSB) was elevated in rural settings and among Melanesian teenagers, with awareness of energy expenditure markedly influencing the volume of SSB intake.   |
| 15. ( <a href="#">Godin et al., 2017</a> )<br>; Guatemala; Cross-sectional | Sample size: 1042<br>Age (years): 13-18<br>Gender:<br>M: 511 (49%)<br>F: 531 (51%)<br>BMI:<br>Normal: 508 (48.8%)<br>Overweight: 102 (9.8%)<br>Obese: 29 (2.8%)<br>Household income (\$/year): NI        | This study evaluated the intake of sugar-sweetened beverages (SSB) among teenagers from both public and private schools in Guatemala City. It analyzed individual and institutional factors correlated with SSB intake. | Soft drinks: 2.58 days/week (SD: 1.89).<br>Sweetened coffees/teas: 2.40 days/week (SD: 2.06).<br>Energy drinks: 0.58 days/week (SD: 1.22) | SSB consumption was markedly elevated among public school pupils compared to private institutions. Regularly acquiring snacks or lunch from school cafeterias or vending machines was associated with increased SSB use consumption.                            |
| 17. ( <a href="#">Yuhass et al., 2020</a> )<br>; USA; Cross-sectional      | Sample size: 1,560<br>Age (years): 12-17<br>Gender:<br>M: 775 (49.7%)<br>F: 785 (50.3%)<br>BMI: NI   | The investigation investigated the impact of various Factors influencing the use of sugar-sweetened beverages (SSB) among teenagers, including demographic, intrapersonal, interpersonal, and home                      | Mean daily SSB consumption: 1.28 servings/day (SD: 1.22)  | Male adolescents, non-Hispanic black adolescents, and those whose parents let them have sugar-sweetened beverages on unfavorable days, resulting in increased use of such drinks. The availability of SSB at home was the most significant predictor of intake. |

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| 18  | <p><a href="#">(Bailey-Davis et al., 2022)</a>;<br/>USA;<br/>Qualitative study</p> | <p>Sample size: 36<br/>Age (years): 11-17<br/>Gender:<br/>M: 17 (47.2%)<br/>F: 19 (52.8%) BMI: NI</p> | <p>This study explored adolescents' perceptions, attitudes, and behaviors associated with the intake of sugar-sweetened beverages (SSBs) in North Carolina, emphasizing the influence of parents, caregivers, and peers in influencing beverage choices.</p>          | <p>87% of participants indicated consuming at least one sugar-sweetened beverage (SSB) daily, with sodas and fruit-flavored drinks being the predominant choices.</p> | <p>The study found that parental influence was the most significant factor in adolescents' SSB consumption. Although adolescents recognized the health risks associated with SSB, they often viewed occasional consumption as acceptable, especially during special occasions or social events.</p>   |
| 19. | <p><a href="#">(Ortega-Avila et al., 2019)</a><br/>; Mexico; Qualitative study</p> | <p>Sample size: 29<br/>Age (years): 15-19<br/>Gender:<br/>M: 13 (44.8%)<br/>F: 16 (55.2%) BMI: NI</p> | <p>This qualitative study investigated adolescents' perceptions of how the family environment influences sugar-sweetened beverage (SSB) consumption. Semi-structured interviews were used to comprehend the contextual and familial factors affecting SSB intake.</p> | <p>Mean daily SSB consumption:<br/>1020 mL (SD: 1297.6)</p>   | <p>The study determined that the presence of SSB at home, especially during meals, and the role of family habits and preferences played a significant part in adolescents' daily SSB consumption. Many participants viewed SSB as a habitual part of family meals, reinforcing their consumption.</p> |

20. ( <a href="#">Ha et al., 2016</a> ); Korea; Cross-sectional	<p>Sample size: 2599            Age (years): 9–14            Gender:              M: 1,048 (40%)              F: 1,551 (60%)            BMI:              Normal: 1,236 (78.6%)              Overweight: 295 (12.0%)              Obese: 205 (9.3%)            Household income (\$/year): NI</p>	<p>This investigation evaluated the relationship between obesity in Korean children and adolescents and the consumption of dietary carbohydrates and SSB.</p>	<p>Total caloric intake (kcal) (M, SD): 1806.0 (19.1)            Total sugar intake (g/day) (M, SD): 51.4 (25.0)            Daily sugar consumption from dairy and fruit (g/day) (M, SD): 6.4 (0.9)            Daily sugar consumption from processed foods (g/day) (M, SD): 25.6 (2.6)            Consumption of sugar-sweetened beverages (mL/day) (M, SD): 63            Energy from SSB (kcal/day) (M, SD): 27</p>	<p>In girls, higher consumption of sugar from milk and fruits was negatively correlated with obesity. However, no significant correlation was found in boys. SSB intake did not show a significant association with obesity in either gender.</p>
21. ( <a href="#">Chiu et al., 2020</a> ); USA; Randomized Controlled Trials	<p>Sample size: 30            Age (years): 13-18            Gender:              M: 30 (100%) BMI: NI</p>	<p>The study aimed to ascertain the status of cardiometabolic health. Overweight adolescent males would be enhanced by substituting sugar-sweetened soda with reduced-fat milk.</p>	<p>Mean SSB consumption before the study: 24 oz/day of soda</p>	<p>The study found no significant improvement in LDL particle size, triglycerides, or cholesterol levels. However, systolic blood pressure and uric acid levels were markedly reduced during the milk phase compared to the soda phase. Parents identified barriers such as the availability of CSSB at home, peer pressure, cultural influences, and child disobedience, making it difficult to reduce consumption despite their concerns about health risks.</p>
22. ( <a href="#">Zhu et al., 2021</a> ); China; Cross-sectional	<p>Sample size: 21            Age (years): 8-17            Gender:              M: 1 (5%)              F: 20 (95%)            BMI: NI</p>	<p>This investigation aimed to investigate parents' barriers and concerns regarding their children's intake of caffeinated, sugar-sweetened beverages (CSSB).</p>	<p>Parents reported their offspring consumed <math>\geq 12</math> oz of CSSB per day</p>	<p>Parents identified barriers such as the availability of CSSB at home, peer pressure, cultural influences, and child disobedience, making it difficult to reduce consumption despite their concerns about health risks.</p>

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| <p>23. (<a href="#">Zhu et al., 2021</a>);<br/>China; Cross-sectional</p>   | <p>Sample size: 2,022<br/>Age (years): 9–14<br/>Gender: intervention (1,046)<br/>M: 534 (51.1%)<br/>F: 512 (48.9%)<br/>Gender: control (1,156)<br/>M: 601 (52.0%)<br/>F: 555 (48.0%) BMI: NI</p> | <p>This school-based initiative is designed to diminish the intake of sugar-sweetened beverages (SSBs) among Chinese children and adolescents. The interventions targeted individual, family, peer, school, and community levels.</p>   | <p>Baseline SSB intake: 286.0 mL/day (intervention), 286.0 mL/day (control)</p>    | <p>The study found that school-based interventions significantly reduced SSB intake among the intervention group, especially in boys and younger children (elementary school level). Boys responded more positively to the intervention compared to girls.</p>   |
| <p>24. (<a href="#">S. Park et al., 2023</a>);<br/>USA; Cross-sectional</p> | <p>Sample size: 831<br/>Age (years): 12-17<br/>Gender:<br/>M: 425 (51.1%)<br/>F: 406 (48.9%) BMI: NI</p>   | <p>This study explored the relationship between adolescents' awareness of health risks associated with consuming sugar-sweetened beverages (SSBs) and their actual consumption of SSBs. It assessed knowledge of conditions such as cavities, weight gain, diabetes, etc.</p> | <p>29% of teenagers ingested sugar-sweetened beverages at least once each day.</p> | <p>The study found that the lack of awareness about certain health risks, such as weight gain, heart disease, and some cancers, was correlated with an increased likelihood of daily use of sugar-sweetened beverages. This suggests that increasing knowledge about these health risks could potentially reduce adolescent SSB consumption.</p> |

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| 25. | <p><a href="#">(Gui et al., 2017)</a>;<br/>China; Cross- sectional</p>            | <p>Sample size: 53,151<br/>Age (years): 6-17<br/>Gender:<br/>M: 37,057 (69.7%)<br/>F: 33,670 (63.3%)<br/>BMI:<br/>Normal: 43.607 (69.8%)<br/>Overweight: 8,000 (12.8%)<br/>Obese: 6,626 (10.6%)<br/>Household income (\$/year): NI</p> | <p>The study assessed the correlation between sugar-sweetened beverage consumption and the risks of obesity and hypertension in Chinese children and adolescents.</p>                           | <p>Prevalence of SSB consumption (M, SD): 66.6% Per capita SSB consumption (M, SD): 2.84 ± 5.26 servings/week Per consumer SSB consumption (M, SD): 4.26 ± 5.96 servings/week High SSB consumers' abdominal obesity risk (M, SD): OR = 1.133 (95% CI: 1.054– 1.217)</p>  | <p>Consumption of sugar-sweetened beverages was positively correlated with abdominal obesity but not with overall obesity or hypertension. Older boys, older children, and those with more screen time or elevated physical activity levels exhibited higher consumption of sugar-sweetened beverages (SSB).</p> |
| 26  | <p><a href="#">(Ames et al., 2016)</a>; USA;<br/>Randomized Controlled Trials</p> | <p>Sample size: 168<br/>Age (years): 14-17<br/>Gender:<br/>M: 53 (31.4%)<br/>F: 116 (68.6%)<br/>BMI: NI</p>  | <p>This study evaluated Self-regulation programs designed to diminish sugar-sweetened beverage (SSB) intake among teenagers via implementation intentions and Go/No-Go training activities.</p> | <p>Pre-intervention SSB consumption (mL/day) (M, SD): 286.0 ± 266.5 Post-intervention SSB consumption (mL/day) (M, SD): 220.9 ± 262.3 Calories consumed post-intervention (M, SD): 170.7 ± 127.7 Sugar consumed post-intervention (grams) (M, SD): 15.1 ± 12.9 SSB intake reduction among males (M, SD): -50.2 mL/day SSB intake reduction among females (M, SD): -18.8 mL/day</p> | <p>Participants with SSB implementation intentions consumed reduced caloric intake, lower grams of sugar, and less sugar-sweetened beverages compared to control groups. Nonetheless, no substantial effects were detected from Go/No-Go training.</p>   |

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| 27 | ( <a href="#">Sari et al., 2022</a> ); Indonesia;<br>Cross-sectional  | Sample size: 120<br>Age (years): 16<br>Gender:<br>M: 50 (41.7%)<br>F: 70 (58.3%)<br>BMI: NI  | This study investigated the correlation between several factors, such as pocket money, the accessibility of sugar-sweetened beverages (SSB) at home, and SSB use among students in Jakarta. | 90% of respondents consumed SSB $\geq 2$ times/week                              | The presence of SSB at home was recognized as the primary factor affecting SSB use., with students whose homes had frequent SSB availability being 6.7 significantly more inclined to consume them in contrast to individuals with restricted access.                            |
| 28 | ( <a href="#">Hardy et al., 2018</a> ); Australia;<br>Cross-sectional | Sample size: 3,671<br>Age (years): 10-16<br>Gender:<br>M: 1,837 (50%)<br>F: 1,834 (50%)<br>BMI:<br>Normal: 66%<br>Overweight: 21.1%<br>Obese: 5.9%<br>Household income (\$/year): NI | The study aimed to investigate the correlation between teenagers' intake of sugar-sweetened drinks (SSB) and their oral health outcomes and weight status in Australia.                     | 29% of adolescents ingested one or more cups of sugar-sweetened beverages daily. | Higher SSB consumption was linked to an increased likelihood of oral health problems, while the correlation with overweight/obesity was diminished consistently. Energy drinks showed stronger associations with adverse oral health outcomes.                                   |
| 29 | ( <a href="#">R. Wang et al., 2025</a> ); China;<br>Cross-sectional   | Sample size: 44,675<br>Age (years): 12-17<br>Gender:<br>M: 22,280 (49.87%)<br>F: 22,395 (50.13%)<br>BMI: NI  | The study examined the Correlations among sugar-sweetened beverage (SSB) consumption, weight-adjusted waist index (WWI), and psychological symptoms in Chinese teenagers.                   | 14.5% consumed SSB >4 times/week   | Consumption of sugar-sweetened beverages exceeding four times per week and being in the upper quartile of weight-related indices were strongly correlated with an increased risk of psychological symptoms, with boys showing lower OR values than girls, but still significant. |

30	( <a href="#">Shamim et al., 2023</a> ) ; Bangladesh; Cross-sectional	Sample size: 9,772 Age (years): 10-19 Gender: M: 4,907 (50.3%) F: 4,865 (49.7%) BMI: NI	This study assessed the intake of savory crispy or fried appetizers, sweet confections, and sugar-sweetened beverages among adolescents in Bangladesh.	25.6% of males and 20.7% of females consumed SSB $\geq 7$ times per week	Increased consumption of unhealthy meals and sugar-sweetened beverages was correlated with characteristics such as maternal education, household wealth, and urban residence, with adolescents in urban slums consuming more.
31	( <a href="#">Pabayo et al., 2016</a> ); USA; Cross-sectional	Sample size: 1,611 Age (years): 14-17 Gender: M: 579 (44.1%) F: 735 (55.9%) A total of 1,314 students had complete data on gender. BMI: NI	The research examined the correlation between the intake of sweetened beverages and depressed symptoms in adolescents in Boston.	Soda consumption 1-6 times per week: $\beta = 0.18$ (0.04, 0.32); Soda $\geq 1$ time/day: $\beta = 0.29$ (0.13, 0.45)	The study discovered that teenagers who consumed soda 2–6 times per week or at least once daily, as well as fruit drinks 2–6 times per week or at least once daily, exhibited markedly elevated depressed symptoms.
32	( <a href="#">Brownbill et al., 2018</a> ) ; Australia; Cross-sectional	Sample size: 446 Age (years): 14-25 Gender: M: 223 (50%) F: 223 (50%) BMI: NI	This study examined marketing strategies for young Australians for sugar-sweetened beverages (SSB). Facebook, focusing on content posted by popular SSB brand pages and the marketing techniques used to engage young people.	SSB brands had a high engagement rate on Facebook, particularly energy drinks and sports drinks	The research revealed that SSB businesses utilized Facebook to resonate with significant socio-cultural values. Young people use themes like "sporting prowess", "masculinity", and "the outdoors". Engagement was encouraged through challenges, competitions, and user-generated content.

**Abbreviation:**

BMI: Body Mass Index, CSSBs: Caffeinated Sugar-Sweetened Beverages, EDs: Energy Drinks, FSB: Flavored Sports Beverages, HAPA: Health Action Process Approach, KAP: Knowledge, Attitude and Practices, NI: No Information, PA: Physical Activity, RAA: Reasoned Action Approach, SSB: Sweet Sugar Beverages, ST: Screen Time, WWI: Weight-Adjusted-Waist Index.

## DISCUSSION

The intake of sugar-sweetened drinks (SSBs) by adolescents plays a significant contribution to the escalating concerns of obesity and weight gain. Many factors influence adolescent SSB consumption habits, including physical activity levels, peer influence, socioeconomic status, emotional condition, and the availability of SSBs in their environment ([H.-Y. Park et al., 2025](#)). Research conducted by (Ilkes et al., 2024) shows that adolescents with low physical activity levels tend to consume more calories from food, particularly from SSBs, leading to increased BMI and obesity. This research emphasizes that when adolescents are not physically active, the negative impacts of SSB consumption become more severe, exacerbating weight-related health problems ([Tang et al., 2025](#)). Several extrinsic variables, such as social peer pressure, also play a crucial role in influencing adolescents' SSB consumption practices. ([Pamarta et al., 2022](#)) found that 73.3% of adolescents influenced by their peers were likely to consume higher amounts of SSBs. Friends who frequently consume SSBs and encourage others to join them significantly impact these consumption habits. Furthermore, the availability of SSBs, especially in school environments, plays a key role in increasing consumption ([Pepping et al., 2025](#)). Adolescents attending schools where SSBs are easily accessible tend to consume them more frequently, both in moderate and large quantities. This highlights the importance of stricter regulation of SSB availability in schools to reduce overconsumption ([Rauzon et al., 2020](#)). The availability of SSBs at home and family eating habits also significantly influence consumption. ([Johansen et al., 2020](#)) found that adolescents accustomed to consuming SSBs as part of their

family meal routine tended to consume more SSBs. Families with healthy shared meal patterns can assist in decreasing SSB consumption among teenagers. In contrast, in families that are more accepting of SSB consumption, adolescents tend to have poorer eating habits and consume more SSBs ([Fuster et al., 2025](#)).

In addition to external factors, SSB consumption impacts obesity through several mechanisms. SSBs provide empty calories, offering energy in ample quantities but lacking essential nutrients. When SSB consumption is not balanced with sufficient physical activity, the calories from SSBs accumulate in the body, increasing the risk of excess weight and obesity ([Z. I. Malik et al., 2025](#)). ([Chatelan et al., 2021](#)) also highlighted the influence of socioeconomic status on SSB consumption habits, noting that adolescents from higher-income families are more aware of health risks and reduce SSB intake more rapidly than those from lower-income families.

This suggests that access to health information and healthy food options is powerfully shaped by economic factors, affecting SSB consumption and obesity. SSB consumption is strongly related to obesity in adolescents through several mechanisms ([Zafar et al., 2025](#)). Exposure to sugar-sweetened beverage marketing, especially on social media, increases adolescent consumption. Adolescents frequently exposed to SSB ads are more inclined to consume these beverages to a greater extent, with active interactions with ads, such as liking or sharing SSB-related content, further strengthening consumption habits ([Chaffee et al., 2021](#)). SSBs contain added sugars that contribute to calorie intake and increase insulin resistance, ultimately impairing weight regulation and heightening obesity risk ([Gascoyne et al.,](#)

[2021](#)). Moreover, emotional factors, such as loneliness, also contribute to increased SSB consumption as a response to stress, making SSB consumption a method to manage adverse feelings, which ultimately contributes to weight gain ([Jensen et al., 2025](#)). Although many studies indicate a relationship between SSB consumption and increased obesity, there are several limitations to consider. One of the primary features of this study is its capacity to identify various factors influencing adolescent SSB consumption habits, including social influences, school environment, and socioeconomic status.

However, many studies remain observational, meaning that the causal connection between SSB intake and obesity cannot be definitively established. Additionally, variability in SSB consumption habits across different countries or cultures may affect the generalizability of findings. Therefore, further experimental or longitudinal investigation is required to validate this correlation more robustly.

## **CONCLUSION**

This scoping review demonstrates that excessive consumption of sugar-sweetened beverages (SSBs) among adolescents is consistently associated with increased body weight, higher BMI, and a greater risk of obesity. The included studies highlight that SSB intake is shaped by multiple determinants, including availability at home and school, peer and family influences, psychosocial factors, and limited health literacy. Overall, these findings underscore the need for comprehensive strategies targeting both behavioral and environmental determinants to effectively reduce SSB consumption and mitigate weight-related health risks among adolescents.

## **SUGGESTION**

Future research should focus on developing and evaluating intervention models aimed at reducing SSB consumption among adolescents, with particular attention to strategies that address environmental accessibility and modifiable behavioral factors. Further studies are needed to investigate the role of school policies, parental involvement, and structured health-education programs in shaping adolescents' beverage choices. Additionally, longitudinal research is recommended to clarify the long-term metabolic and weight-related consequences of habitual SSB intake throughout adolescence.

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## **CONFLICTS OF INTEREST**

The authors confirm that there are no conflicts of interest related to this study.

## **AUTHOR CONTRIBUTIONS**

IF, EWM: contributed significantly to the data collection, analysis, interpretation, conceptualization, and design results. IF, EWM: closely developed or examined the text for essential intellectual elements. IF, EWM: final checks and submission.

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