



The Relationship between Nutritional Literacy, Body Image, and Pocket Money with Sweet-Sugar Beverages (SSB) Consumption in Adolescents

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Abstract. *The consumption pattern of sugar-sweetened beverages (SSBs) among adolescents has shown a worrying increase in recent years. It has been linked to various adverse health outcomes, such as an increased risk of obesity, diabetes-mellitus, and other metabolic disorders. Several factors may influence this consumption behaviour, including nutrition literacy, body image, and the amount of pocket money adolescents receive. This article aims to critically review and analyze scientific findings related to the relationship between nutrition literacy, body image, and pocket money and adolescents' consumption of SSBs. The method used in this article is a literature review of scientific articles obtained through PubMed, Elsevier, ScienceDirect, and Google Scholar, with inclusion criteria including international articles published within the last five years (2020–2025) relevant to the topic and peer-reviewed. The review findings indicate that higher nutrition literacy is associated with healthier dietary behaviours and reduced sugar-sweetened beverage (SSB) consumption. Body image has a significant role in emotional eating, including SSB intake. Additionally, greater pocket money is linked to higher consumption of SSBs. These three factors are interrelated and influence adolescent consumption patterns. Therefore, comprehensive interventions should be designed in cognitive, psychosocial, and economic aspects through sustainable, adolescent-centered nutrition education.*

Keywords: *Adolescent; Body Image; Nutrition Literacy; Pocket Money; Sweet-Sugar Beverages.*

1. INTRODUCTION

Adolescents represent an age group undergoing a transitional phase from childhood to adulthood, marked by complex physical, psychological, and social changes (Sawyer et al., 2018). Adolescence is the most critical period for establishing healthy behaviours that can persist into adulthood. However, it is also a vulnerable phase for developing various diseases that may manifest later in life (Carrara & Schulz, 2018). During this growth and developmental stage, adolescents face multiple health-threatening factors. One major detrimental factor is nutritional issues, which affect physical and mental development (Lee et al., 2019).

Adolescents in developing countries commonly encounter nutritional problems such as undernutrition, obesity, chronic diseases, and unhealthy or unbalanced dietary and lifestyle habits. Nutrition-related health issues among adolescents include thinness, obesity, malnutrition, vitamin deficiencies (avitaminosis), dental caries, simple goitre, and anemia. Inadequate and imbalanced diets have also contributed to reduced concentration and perception, increased learning and behavioural disorders, higher school absenteeism, and declining academic performance (Lee et al., 2019). According to the *Global Nutrition Report* (2018), school-aged children, adolescents, and adults worldwide tend to consume sugar-sweetened foods and beverages and processed flour-based products excessively.

One particularly concerning habit is the high consumption of sugar-sweetened beverages (SSBs), such as sodas, packaged teas, energy drinks, and processed fruit beverages. Data from Riskesdas 2018 indicates that 61.27% of Indonesia's population aged ≥ 5 years consumes sweetened beverages more than once a day. SSB consumption has risen among adolescents due to modern lifestyle trends and easy access to such products (BKPK, 2019). A study by Anwar et al. (2024) conducted on adolescents at SMKN 32 Jakarta revealed that 85.7% of female adolescents consumed SSBs more than once daily, with most purchasing them independently. The most frequently consumed SSBs were sweet tea, sweet coffee, and carbonated drinks. These findings reinforce that excessive added sugar intake contributes to an increased risk of obesity and metabolic disorders in adolescents (Anwar et al., 2024).

A key factor influencing adolescent consumption patterns is nutrition literacy, which reflects an individual's ability to acquire, process, and understand basic nutritional information needed to make healthy decisions. A study demonstrated a significant association between nutrition literacy and SSB consumption among adolescents in Bandung, suggesting that improved nutrition literacy may help reduce SSB intake. However, its direct impact on nutritional status remains unclear (Sinaga et al., 2022). On the other hand, body image perception also plays a crucial role. Body image encompasses how individuals perceive and feel about their physical appearance. Among adolescents, social pressure to attain an ideal body often leads to body image anxiety, resulting in unhealthy eating behaviours (Zhu et al., 2025). Additionally, pocket money is a determinant of SSB consumption. Greater disposable income allows adolescents more freedom in independently choosing food and beverages, often leading to unhealthy consumption due to taste preferences and convenience (Zhuang et al., 2021). Given this background and findings, it is essential to further examine the interplay between nutrition literacy, body image, and pocket money in influencing adolescent SSB consumption. This review article aims to analyze relevant studies to provide a comprehensive overview of the factors affecting SSB consumption among adolescents.

2. RESEARCH METHOD

This narrative literature review examines the relationship between nutrition literacy, body image, and pocket money in relation to sugar-sweetened beverage (SSB) consumption among adolescents. The secondary data were collected from academic databases, including PubMed, Elsevier, ScienceDirect, and Google Scholar. The article selection followed strict inclusion criteria: (1) original research articles, (2) published within the last five years, (3) written in English, and (4) relevant to the research variables. From the comprehensive search,

10 articles met all the inclusion criteria and served as the primary references for this review. The narrative approach allows for a thorough and critical analysis of existing studies while identifying key patterns and gaps in the current research landscape regarding adolescent SSB consumption behaviours.

3. RESULTS AND DISCUSSION

Results

Table 1. Literature Review Screening Results

No.	Year	Title	Method	Author	Result
1.	2022	<i>The Effect of Nutrition Literacy on Sugar Consumption Sweetened Drinks and Body Mass Index for High School Students in Bandung</i>	Cross-sectional study	Yakobus L. Sinaga & Yosef Pandai Lolan	This study shows a significant relationship between nutrition literacy and SSB consumption ($p < 0.05$), where respondents with low nutrition literacy are twice as likely to consume SSBs compared to those with high nutrition literacy.
2.	2020	<i>Health Literacy Program to Reduce the Consumption of Sugary Drinks by Middle School Students in Jakarta</i>	Preliminary study & intervention	Ni Putu Pristi Wisuantari & Laras Sekarasih	This study shows that improving health (nutrition) literacy significantly contributes to reducing sugar-sweetened beverage (SSB) consumption among adolescents.
3.	2024	<i>Nutrition Literacy Profile Among Adolescents in Kuwait: A Cross-Sectional Study</i>	Cross-sectional study	Anwar H. AlBaloul, Maraheb M. AlKhalidi, & Haya AlAjmi	This study shows that adolescents with adequate nutrition literacy scores (score > 29) are known to consume sweetened beverages less frequently. These results confirm that high nutrition literacy is associated with decreased SSB consumption.
4.	2023	<i>Associations between Knowledge of Health Risks and Sugar-Sweetened Beverage Intake among US Adolescents</i>	Cross-sectional study	Sohyun Park, Seung Hee Lee, Caitlin Merlo, & Heidi M. Blanck	This study shows that 28.8% of adolescents consume SSBs ≥ 1 time/day, while 24.4% did not consume SSBs in the last 7 days. These results indicate low health/nutrition literacy contributes to high adolescent SSB consumption.
5.	2024	<i>Body Image and Dietary Habits in Adolescents</i>	Systematic review	Patricia Bodega, Amaya de Cos-Gandoy, Juan M. Fernandez-Alvira, Rodrigo Fernandez-Jimenez, Luis A. Moreno, & Gloria Santos-Beneit	This study shows that body image perception is related to adolescents' eating and drinking patterns, including SSB consumption. These results suggest that accurate body perception or awareness of being overweight may encourage reducing sweetened beverage intake among adolescents.
6.	2025	<i>Association between Body Esteem and Sugar-Sweetened</i>	Cross-sectional study	Jiawen Zhu, Yuanyuan Zhu, Zihe Zhao, Qianling	This study shows a significant relationship between adolescent body esteem and SSB

	<i>Beverage Intake among Chinese Undergraduate Students</i>			
			Huang, Changju Liu, & Zhi Zeng	consumption (OR = 0.962; p = 0.007). These results indicate that self-perception of appearance may play a role in reducing SSB consumption in adolescents.
7.	2024 <i>Soda Consumption and Overweight in High School Students in Surakarta, Indonesia</i>	Cross-sectional study	Farhan Dian Ramadhoni & Nur Latifah Mardiyati	This study shows that most respondents had pocket money \geq Rp10,000 (88.5%), and the majority frequently consumed soft drinks (57.7%). These findings indicate that the availability of pocket money can influence sweetened beverage purchasing and consumption habits.
8.	2022 <i>Availability of Sugar-Sweetened Beverages at Home as The Dominant Factor Related to Its Consumption Among Students of SMAN 47 Jakarta, Indonesia, in 2022</i>	Cross-sectional study	Nadhira Winindya Sari, Kusharisupeni Djokosujono, Diah Mulyawati Utari, & Neni Rohayati	This study shows a significant relationship between pocket money and SSB consumption (p = 0.033). These findings indicate that economic factors play a major role in determining adolescents' SSB consumption behaviour.
9.	2022 <i>Perceptions of Sugar-Sweetened Beverages Among Adolescents in North Carolina</i>	Semi-structured discussion	Lindsey Haynes-Maslow, Sarah Ray, & Kristen Giombi	This discussion-based study shows that adolescents have a basic understanding of healthy eating patterns. However, although adolescent health literacy regarding the risks of SSB consumption is relatively good, it is not always followed by healthy consumption behaviour, as taste preferences and social context still influence it.
10.	2024 <i>Factors Related to the Consumption of Sugar-Sweetened Beverages (SSBs) Among High School Students at SMA Negeri 68 Jakarta in 2024</i>	Cross-sectional study	Debora Karyoko, Wahyu Kurnia Yusrin Putra, & Teguh Jati Prasetyo	This study shows that most respondents (87.31%) consumed a high amount of sugar from SSBs (>50 g/day). Other significantly influential factors identified include the availability of SSBs at home and peer influence.

Discussion

The consumption of sugar-sweetened beverages (SSBs) among adolescents has become a significant concern in public health, given its impact on nutritional status, the risk of obesity, and chronic diseases in the future (Anwar et al., 2024). Based on a review of ten journals, SSB consumption in adolescents is influenced by several factors, including nutrition or health literacy, body image perception, and pocket money (economic factors). These factors play a role in shaping consumption behaviour, which can directly impact long-term health.

Nutrition literacy and health literacy are found to play a significant role in reducing

SSB consumption among adolescents. Nutrition literacy includes basic knowledge about food and nutrients and encompasses the ability to understand, evaluate, and apply information in everyday life contexts. Nutritional health literacy includes cognitive and social skills that enable individuals to make appropriate decisions regarding dietary patterns (Iyassu et al., 2024). A study by Sinaga et al. (2022) shows a significant relationship between nutrition literacy and SSB consumption, where adolescents with low nutrition literacy are twice as likely to consume SSBs compared to those with high literacy. Similar results were also found in a study by AlBaloul et al. (2024), which stated that adolescents with adequate nutrition literacy scores (score > 29) tend to consume SSBs less frequently. Furthermore, in an intervention study by Wisuantari & Sekarasih (2020), a health literacy improvement program significantly reduced sweetened beverage consumption among secondary school students. This study reinforces the finding that increasing adolescents' knowledge, attitudes, and awareness of the content and health risks of SSBs can be an effective preventive strategy. However, a study by Haynes-Maslow et al. (2022) offers an additional perspective that, although adolescents may have a good understanding of healthy eating patterns and the risks of SSBs, their behaviour remains influenced by other factors, such as personal taste, social pressure, and cultural context. This indicates that adolescents' cognitive understanding is not necessarily followed by healthy behaviour unless supported by a social and cultural environment that encourages decision-making aligned with balanced nutrition principles (Wang et al., 2022).

In addition to nutrition literacy, body image or body esteem, or perceptions of body shape and weight, are also associated with SSB consumption patterns among adolescents. Body image refers to an individual's perception of their body's shape, size, and physical appearance, as well as the thoughts and feelings that arise in relation to it. Meanwhile, body esteem is a part of body image that emphasizes the affective evaluation or self-worth associated with the body, such as satisfaction or dissatisfaction with one's body. In other words, body esteem is the emotional dimension of body image, which reflects how much individuals accept and appreciate their bodies. Both are closely related and contribute to developing adolescents' eating habits and lifestyles (Lacroix et al., 2022). A systematic study by Bodega et al. (2024) reveals that adolescents with accurate body perception tend to adopt healthier eating patterns, including reduced SSB consumption, compared to those with distorted body perception. In addition, Zhu et al. (2025) found that the body esteem-appearance dimension is negatively associated with SSB consumption (OR = 0.962), meaning that adolescents with positive perceptions of their physical appearance tend to consume lower amounts of SSBs. Conversely, the body esteem-attribution dimension, which refers to self-confidence based on social

judgment, is positively associated with SSB consumption. This may indicate that some adolescents consume SSBs as part of social expression or lifestyle, even though they are aware of the health impacts.

Adolescents' pocket money or economic condition has also been proven to influence SSB consumption behaviour. A study by Ramadhoni & Mardiyati (2024) indicates that most adolescents with pocket money \geq Rp10,000 daily consume soft drinks more frequently. This study suggests that higher pocket money availability gives adolescents more ease in purchasing sweetened beverages independently, especially outside parental supervision. This is supported by a study by Sari et al. (2022), which states that pocket money has a significant relationship with SSB consumption ($p = 0.033$), making it one of the economic factors influencing consumption behaviour. However, in contrast to these findings, a study by Karyoko et al. (2024) shows no significant relationship between pocket money and SSB consumption. In that study, the more dominant factors influencing SSB consumption were the availability of SSBs at home (OR = 20.000) and peer influence (OR = 4.588). Although pocket money is important, the social environment and product accessibility may be more decisive in shaping adolescent consumption. Adolescents with easy access to SSBs, whether at home, school, or public places and in social environments that support or normalize sweetened beverage consumption, tend to find it more difficult to control their consumption behaviour regardless of how much pocket money they have. Accessibility and social norms can reinforce consumption habits, even when adolescents have awareness or knowledge about the adverse health effects of SSBs (Wang et al., 2022).

Overall, the results of this review indicate that a single factor does not solely influence SSB consumption among adolescents but is the result of an interaction between knowledge factors (nutrition literacy), psychological factors (body image), economic factors (pocket money), and the social environment. Therefore, efforts to reduce SSB consumption among adolescents need to be carried out comprehensively through education and nutrition literacy enhancement, with environment-based approaches, access restrictions, and strengthening social support from family and peers.

4. CONCLUSION

Based on the literature review, it can be concluded that various interrelated factors influence sugar-sweetened beverage (SSB) consumption among adolescents. Nutrition or health literacy has been proven to be a significant protective factor. In addition, body image also contributes to consumption behaviour. Adolescents with positive or realistic body

perceptions tend to avoid excessive SSB consumption. Economic factors, particularly pocket money, also play a role in supporting or facilitating access to SSBs. Although not all studies found significant relationships, most showed that adolescents with higher pocket money had a greater tendency for SSB consumption. However, environmental factors such as SSB availability at home and peer influence were also proven to be important determinants of this consumption behaviour. Therefore, efforts to reduce SSB consumption among adolescents must be implemented comprehensively by strengthening nutrition literacy, building healthy body perceptions, and controlling environmental and economic factors influencing adolescent consumption behaviour.

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