

Research Article

Targeted Educational Materials on Sugar-Sweetened Beverages for Urban Adolescents in Jakarta: A Mixed-Methods Study

Mahsa Faraji¹, Luh Ade Ari Wiradnyani^{1,2*}, Dian Novita Chandra¹, Judhiastuty Februhartanty^{1,2}, Andrean Wangsa¹, Indah Suci Widyahening^{2,3}

¹Department of Nutrition, Faculty of Medicine, Universitas Indonesia–Dr. Cipto Mangunkusumo General Hospital, Central Jakarta 10430, Indonesia

²Southeast Asian Ministers of Education Organization–Regional Centre for Food and Nutrition (SEAMEO RECFON)/*Pusat Kajian Gizi Regional (PKGR)*, East Jakarta 13120, Indonesia

³Department of Community Medicine, Faculty of Medicine, Universitas Indonesia–Dr. Cipto Mangunkusumo General Hospital, Central Jakarta 10430, Indonesia



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*Corresponding Author:

tel: +6281368136675

email: adeariwiradnyani@gmail.com

ABSTRACT

This study aims to identify the educational needs of urban adolescents in Jakarta to improve their Knowledge, Attitudes, and Practices (KAP) regarding Sugar-Sweetened Beverages (SSBs). Its goal is to develop tailored educational material topics regarding SSBs related to health risks, such as obesity and Non-Communicable Diseases (NCDs). Employing a mixed-methods approach, the research was conducted across five public senior high schools in all five areas of Jakarta from January to February 2024. The quantitative component involved a survey of 488 students to assess their KAP related to SSBs. The KAP formed the basis of the educational materials. The qualitative approach involves 2 Focus Group Discussions (FGDs) with students and 8 In-Depth Interviews (IDIs) with teachers and experts focusing on adolescents' nutrition and health. The insights were used for the development of the educational materials. The qualitative data were transcribed, coded, and analysed thematically to pinpoint essential educational materials that could bridge the gaps identified in the quantitative data. Results showed that only 18.8% of adolescents had good knowledge, 13.9% had a positive attitude, and 32.4% exhibited healthy practices regarding SSBs. Findings revealed critical issues: poor knowledge, negative attitude, and unhealthy practice regarding the maximum daily sugar intake, inadequate understanding of the nutritional value of sugar, infrequent checking of sugar content before consuming SSBs, limited awareness of SSBs' negative health impacts, and poor knowledge of SSB examples and food labelling practices. Educational materials are needed to address critical gaps in adolescents' KAP related to SSBs. These materials should focus on raising awareness about the health risks of SSBs, understanding sugar content, improving food labelling literacy, and promoting healthier beverage choices. Future research should assess the implementation and effectiveness of tailored educational strategies to enhance adolescents' KAP related to SSBs, address critical health risks, and promote informed beverage choices.

INTRODUCTION

The excessive consumption of Sugar-Sweetened Beverages (SSBs) among adolescents is a global concern, contributing to serious health risks such as dental caries, metabolic syndrome, cardiovascular disease, and type 2

diabetes (Pereira 2014). In Indonesia, urban areas reflect this trend; in East Jakarta and Bandung, adolescents consume SSBs exceeding 20% of their daily energy needs. Meanwhile, 46.9% of Depok adolescents consume 1 to 3 medium-sized soft drinks weekly (Sartika *et al.* 2022). This highlights the significant role of SSBs

in urban adolescents' diets, reflecting broader global patterns. Adolescent SSB consumption is influenced by preferences for sweet and refreshing drinks, age, weight status, and ethnicity, alongside external factors such as parental habits, peer influence, and home availability of SSBs (Imoisili *et al.* 2020; Beaulieu *et al.* 2020). Despite these risks, gaps remain in adolescents' Knowledge, Attitudes, and Practices (KAP) related to SSBs (Laksmi *et al.* 2018). Current strategies to address SSB consumption include health education, substituting healthier alternatives, and implementing targeted interventions (Nugroho *et al.* 2022). Existing nutrition education modules like *Aksi Bergizi* (MoH RI 2019) and *Be Smart Drink Water* (WHO 2016) lack focus on peer pressure, social norms, and beverage-related misconceptions. They are primarily print-based and time-intensive, limiting engagement. Modernizing these with interactive digital formats—videos, e-booklets, and presentations—can enhance their appeal and effectiveness. Building on previous studies that highlight the importance of targeted education (Wisuantari & Sekarasih 2020; Sari *et al.* 2022; Yulia *et al.* 2016), this study aims to assess the educational needs of urban adolescents in Jakarta to improve their KAP regarding SSBs, ultimately informing the materials needed to be included in tailored educational interventions.

METHODS

Design, location, and time

This study is part of a larger project titled “The Effect of a School-based Nutrition Intervention to Promote Healthy Eating Behaviour among Adolescents in Indonesia – A Cluster Randomised Pilot Study,” with clinical trial registration number 97/AF.1a/31/1/TM.23.04/e/2023. A mixed-methods approach was employed across five public senior high schools in Jakarta from January to February 2024. Utilizing Kemp’s Model (Bajracharya 2019), an instructional design framework, the research focused on analysing learner needs and developing appropriate materials for SSBs. The research comprised quantitative surveys, qualitative Focus Group Discussions (FGDs), and In-Depth Interviews (IDIs) to assess adolescents' KAP regarding SSBs. A validated online KAP regarding SSBs questionnaire was administered in January 2024, followed by FGDs with female

and male adolescents and IDIs with teachers and experts in February 2024. The Transtheoretical Model (Saeidi *et al.* 2024), which outlines the stages of behaviour change from pre-contemplation to maintenance, was used to assess adolescents' readiness for behaviour change, and the Delphi Technique (Meshkat *et al.* 2014; Nasa *et al.* 2021) facilitated iterative rounds of qualitative data collection. Ethical approval was granted by the Health Research Ethics Committee, Faculty of Medicine, Universitas Indonesia (Number KE-1368/un2.F1/ETIK/PPM.00.02/2023).

Sampling

The study employed mixed-methods in three phases. First, a survey of 488 urban adolescents from five public senior high schools in Jakarta was conducted. The Provincial Education Office recommended 10 schools for each area (South, North, East, West, and Central Jakarta), from which one school per area was randomly selected. Adolescents in grades 10 and 11 who were willing to participate were included. Subsequently, 20 adolescents were randomly selected for two FGDs, considering KAP SSB score (high/low scores) and gender. Finally, IDIs with three teachers and five experts (minimum three years’ experience in adolescent nutrition health) triangulated the findings.

Data collection

Data were collected through a survey, FGDs, and IDIs. The survey includes the KAP questionnaire, which covers adolescents’ knowledge (14 questions), attitude (7 questions), and practice (5 questions) regarding SSBs, and the beverages intake questionnaire (BEVQ), developed by Teng *et al.* (2019) and validated by this study and adopted for Indonesian culture, which assesses KAP related to SSBs. The BEVQ, adopted from Hedrick *et al.* (2012), evaluates beverage consumption patterns. FGDs with adolescents examined health information sources, preferred educational contents and formats, SSB consumption patterns, and food labelling awareness, conducted face-to-face. IDIs with teachers and experts held online or offline. FGD findings were triangulated, and education strategies were assessed. Informed consent and confidentiality were ensured, with data collection led by the primary researcher, an assistant, and logistic support.

Data analysis

The study analysed quantitative data using descriptive methods and qualitative data through thematic analysis. KAP scores were categorized into quartiles: knowledge and overall KAP scores were classified as low (0–25th percentile), medium (26th–75th percentile), and high (76th–100th percentile). Attitudes were classified as negative/positive, and practices as unhealthy/healthy, with higher percentiles indicating positive attitudes and healthy practices. The statistical analysis was conducted using Microsoft Excel. Descriptive statistics (median, interquartile ranges) were used for non-normally distributed data. Qualitative data from FGDs and IDIs were meticulously transcribed and decoded to identify recurring themes. Quantitative and qualitative data insights revealed KAP gaps and adolescents’ preferences. They informed the content and structure of the educational materials, addressing SSB-related issues and effectively improving food labelling literacy.

RESULTS AND DISCUSSION

This study highlights gender-specific differences and gaps in urban adolescents’ KAP regarding SSBs, socio-demographics, and educational materials preferences, emphasizing the need for targeted educational strategies to address public health concerns

Respondent characteristics

In January 2024, 488 adolescents from five public senior high schools in Jakarta participated in the study. Participants included 41.2% males and 58.8% females, primarily in grades 10 (60.0%) and 11 (40.0%). Half of the fathers worked informally, while 74.2% of mothers were unemployed. Detailed characteristics are summarized in Table 1.

Result showed overall KAP levels regarding SSBs among urban adolescents: 18.8% had good knowledge, 13.9% had a positive attitude, and 32.4% exhibited healthy practices. Teng *et al.* (2020) reported higher 'good' KAP percentages (88.4% attitude, 51.8% knowledge, 44.6% practice) in Malaysia. Awareness of high-sugar-SSB health risks varied: 18.9% and 25.4% knew fat mass links, 17.8% and 32.6% knew dental caries links. Table 2 details components of each domain, with examples including 18.6% of males and 26.8% of females knowing the sugar

Table 1. Socio-demographic characteristics of urban adolescents

Characteristics	Informants (n=488)		Median (Min.–Max.)
	n	%	
Age			16 (14–18)
Grade			
Grade 10	293	60.0	
Grade 11	195	40.0	
Gender			
Male	201	41.2	
Female	287	58.8	
Regions			
South Jakarta	113	23.1	
North Jakarta	94	19.3	
East Jakarta	94	19.3	
West Jakarta	106	21.7	
Central Jakarta	81	16.6	
Fathers’ age			
Adult (19–59 years)	471	96.5	
Elderly (>60 years)	17	3.5	
Fathers’ education			
Low	68	13.9	
Moderate	257	52.7	
High	163	33.4	
Fathers’ jobs			
Unemployed/Student	21	4.3	
Formal employment	223	45.7	
Informal employment	244	50.0	
Mothers’ age			
Adult (19–59 years)	483	99.0	
Elderly (>60 years)	5	1.0	
Mothers’ education			
Low	47	9.6	
Moderate	260	53.3	
High	181	37.1	
Mothers’ jobs			
Unemployed/Student	362	74.2	
Formal employment	81	16.6	
Informal employment	45	9.2	

Min.: Minimum; Max.: Maximum

Table 2. Distribution of adolescents' correct/favorable responses on KAP related to SSBs and food labelling

No.	Contents	Male (n=201)		Female (n=287)	
		n	%	n	%
Domain knowledge					
1	World Health Organization's sugar intake recommendation	113	23.2	153	31.4
2	Maximum daily sugar limit	91	18.6	131	26.8
3	SSBs as unsuitable energy sources	76	15.6	78	16.0
4	Nutritional value of sugar	64	13.1	78	16.0
5	Condensed milk vs. sugar	72	14.8	100	20.5
6	SSBs with syrup awareness	77	15.8	95	19.5
7	SSBs with honey awareness	64	13.1	81	16.6
8	High-sugar-SSBs and fat mass	92	18.9	124	25.4
9	High-sugar-SSBs and dental caries	87	17.8	159	32.6
10	Sport drinks vs. water post-exercise	94	19.3	122	25.0
11	High-sugar-SSBs and cravings	98	20.1	169	34.6
12	Understanding serving sizes	78	16.0	118	24.2
13	Purpose of nutritional labels	118	24.2	186	38.1
14	Sugar labelling for <1 g	64	13.1	71	14.5
Domain attitude					
1	Reading SSBs ingredients	130	26.6	191	39.1
2	Checking sugar content before purchase	91	18.6	119	24.4
3	Learning to read sugar labels	131	26.8	194	39.8
4	No added sugar drinks are healthier	127	26.0	195	40.0
5	Knowing alternative names for sugar	120	24.6	174	35.7
6	Understanding nutrition facts	130	26.6	194	39.8
7	Labels on SSBs are essential	66	13.5	60	12.3
Domain practice					
1	Regularly checking sugar content	72	14.8	103	21.1
2	Preferring fresh milk	86	17.6	118	24.2
3	Avoiding SSBs at breakfast	99	20.3	134	27.5
4	Comparing SSBs calories before buying	67	13.7	103	21.1
5	Avoiding 3-in-1 drinks for convenience	77	15.8	102	20.9
Overall KAP score					
1	Low (score <7)	38	18.9	54	19.4
2	Medium (score 7 to 19)	141	70.1	204	73.4
3	High (score >19)	22	10.9	20	7.2

KAP: Knowledge, Attitude, and Practice; SSBs: Sugar-Sweetened Beverages; vs.: Versus

limit (knowledge), 13.5% and 12.3% considering labels essential (attitude), and 14.8% and 21.1% checking sugar content (practice). Despite this, 40% of Indonesian adolescents consume SBBs

(Laksmi *et al.* 2018), and racial/ethnic disparities exists (Dai *et al.* 2021), highlights the need for targeted interventions.

Targeted educational materials on SSBs

The assessment of adolescents' educational needs identified gaps in KAP related to SBBs. These gaps, derived from a survey of 488 adolescents in Jakarta and further explored through FGDs with adolescents and IDIs with teachers and experts, are analyzed in the subsequent topics along with corresponding recommendations (Table 3). To align with participants' preferences and enhance engagement, suggested delivery methods include e-booklets, posters, interactive lectures, and videos.

Topic 1: SSBs' negative health impacts.

The study found that only 31% of adolescents understood that SSBs are not an appropriate calorie source for those with insufficient energy intake. Additionally, 44.3% recognized the association between high SSB consumption and increased fat mass. Interestingly, adolescents often perceived SSBs, like sweetened iced tea or soda as refreshing, especially in hot weather, a view supported by the nutrition expert. However, most were unaware of sugar's health impacts, with few recognizing its effects on their bodies. High refined sugar intake is linked to obesity and type 2 diabetes (Arshad *et al.* 2022), emphasizing the need for targeted interventions to improve understanding of SSBs' health risks (Teng *et al.* 2020).

“Usually soda. The water [available at schools] is hot and [looking for something] refreshing, in the throat, so buy [soda]... when I test it, I really like it... then finally it becomes an addiction... I have to stop.” (Female adolescent, high KAP, South Jakarta).

Topic 2: Sugar's nutritional value. In the knowledge domain, only 29.1% of participants correctly answered, "15 g (1 tablespoon) of sugar is equivalent to 15 g of carbohydrates in our food." Similarly, 35.2% of adolescents correctly identified the caloric equivalence between sweetened condensed milk and granulated sugar, while 40.2% understood that the serving size in the Nutrition Facts reflects a normal portion. Additionally, 25.8% agreed that reading food labels on packaged drinks is unnecessary, suggesting many urban adolescents believe food labelling should always be checked. Teachers observed that adolescents rarely check food labelling, and a nutrition expert recommended using tablespoons to present sugar content on food labelling, as this measurement is more familiar. This approach could improve adolescents' understanding of nutritional information. Enhancing food label comprehension in schools supports the UN's Sustainable Development Goals (SDG.3 and 4): promoting better health and quality education (Pulimeno *et al.* 2020; United Nations 2015).

Table 3. Identifying the targeted educational material needs for adolescents regarding SSBs'

Topics	Findings from the quantitative survey and further exploration in the FGDs and IDIs
Knowledge	
SSBs' negative health impacts	Only 31% and 44.3% of participants recognized the SSBs health risks. Quantitative and qualitative data emphasized on delivering the educational materials adversely and clearly on SSBs effects.
Knowledge and attitude	
Sugar's nutritional value	The survey revealed a low awareness of sugar's nutritional value, with only 29.1% and 35.2% of participants correctly answering related questions, suggesting the need for educational materials.
Knowledge and practice	
Sugar maximum daily intake	Only 45.5% correctly understood the recommended daily sugar intake. Educational materials should provide clear sugar consumption guidelines.
SSB examples	Knowledge of SSB examples was limited, with 35.2% and 29.7% correctly identifying them. Educational materials should include practical examples of SSBs and their impacts.
Low-sugar or sugar-free labelling	Only 27.7% understood low-sugar or sugar-free labelling, indicating the need for training on food labels.
Attitude and practice	
Checking SSBs' sugar content	Only 43% checked sugar content before consumption. Educational materials should emphasize reading food labels and checking sugar content.

FGD: Focus Group Discussions; IDI: In-Depth Interviews; SBSs: Sugar-Sweetened Beverages

Intervention in improving nutrition knowledge in young people can positively influence their dietary choices and well-being (Wang *et al.* 2015).

“If you are talking about the sugar content from the label, it is in g... Cognitively, we cannot imagine what 10 g looks like. So, showing the equivalent in household measurements like tablespoons would be more relatable for students.” (Female expert, 25 years' nutrition science experience).

Topic 3: Sugar maximum daily intake.

Although there were already intervention efforts by programmes such as Young Health Programme (YHP) (Cini *et al.* 2023) and Nutrition Goes To Schools (NGTS) (Kunaepah *et al.* 2024), as well as educational media created by the School Health Program/*Usaha Kesehatan Sekolah* “UKS” team (Direktorat Sekolah Dasar 2024) at the schools, only 45.5% of adolescents correctly answered the question about the recommended maximum daily sugar intake of 50 g according to guidelines from the Indonesian Ministry of Health (MoH RI 2014). An adolescent in FGD reported that beverages with 7 g of sugar were acceptable, while those with 20 g or more should be avoided. The survey revealed 48.4% of adolescents consumed sweetened fruit juice, 42.8% drank soft drinks, and similar percentages (42.8%) consumed sugary homemade or bottled tea and coffee at least once daily. Teachers and experts confirmed frequent SSB consumption, particularly during school hours. This underscores the need for an educational module to address sugar content and food labelling.

“From what I know, our sugar consumption should be 4 tablespoons or 54 g... From where we took part in YHP training.” (Male adolescent, low KAP, West Jakarta).

“For me, 7 g is still fine... For example, if there's a lot of sugar, it's 20 or so.” (Female adolescent, high KAP, East Jakarta).

“If I pay attention, these adolescents drink quite often.” (Female teacher, 26 years' experience, West Jakarta).

Topic 4: SSB examples. In the knowledge domain, only 35.2% of respondents correctly answered, “Beverages with corn syrup in the food ingredient list are SSBs.” In comparison, 29.7% correctly identified that “SSBs include beverages with honey,” and 44.3% recognized that “High consumption of SSBs in adolescence and early adulthood is associated with increased

fat mass at 20.” For the practice domain, only 41.8% preferred “flavoured milk (chocolate, strawberry, etc.) over fresh milk.” Additionally, 47.7% consumed SSBs like ready-to-drink tea, coffee, and flavoured milk only for breakfast, while 36.7% regularly consumed “3-in-1 drinks like malted milk chocolate, hot chocolate, and cappuccino for convenience.” The survey also showed that consuming various SSBs, such as sweetened fruit juice, soft drinks, sweetened tea, and homemade and bottled tea/coffee with milk and sugar, was quite common. Specifically, these beverages were consumed 1–3 times a week by 47.5%, 50.2%, 64.3%, 51.2%, and 54.2% of adolescents, respectively. When broken down, they were consumed 1–3 times daily by 48.4%, 42.8%, 11.9%, 26.4%, and 42.8%. Only a small portion, 4.1%, 7.0%, 23.8%, 22.3%, and 13.6%, reported never consuming these beverages in December 2023. Like the survey, another study shows 41% of adolescents consumed at least one serving of SSBs daily (Laksmi *et al.* 2018).

The qualitative data further highlights the high availability and accessibility of SSBs in school canteens, with frequent consumption by adolescents during breaks, partly due to limited access to refillable water stations. Teachers confirmed this pattern, and experts in nutrition science noted that taste, price, and aggressive marketing drive SSB consumption. In line with these findings, factors influencing adolescents' SSB consumption, as reported during FGDs, included the home environment, daily consumption habits, weight status, parental education, and attitudes toward limiting SSB intake (Imoisili *et al.* 2020).

Some adolescents were dissatisfied with SSB consumption despite efforts like diluting sweetened iced tea. Peer influence, social media, family eating patterns, and pocket money were also cited as critical factors (Munguía-Serrano *et al.* 2020; Imoisili *et al.* 2020; Sampasa-Kanyinga *et al.* 2015). Attractive ingredient presentations and trendy options like boba—chewy tapioca pearls in sweetened beverages—increased SSB consumption among adolescents, as stated by health communication experts. These findings echo recent studies that highlighted factors such as friends, social media, family dynamics, the sweet taste of SSBs, and appealing presentations, along with marketing strategies—particularly advertisements, brand ambassadors, and the strategic placement of products, drive adolescent

consumption and influence their purchasing decisions on SSBs (Munguía-Serrano *et al.* 2020).

“As... SSB... are still available in the canteen... Bottled tea beverages are often consumed by students... If refillable water stations were available, they would prefer to drink water. But since they're not available in every class, they go to the canteen and buy sweet drinks.” (Female teacher, 3 years' experience, East Jakarta).

“Delicious... the price. And the third one is about the lifestyle. Trend. You buy it. You photo. Post... Social media. Peer influence... Go to the mini market. You see so many products. Advertisement. Products are placed at the front of the display. The availability of the product is part of the advertisement too.” (Male expert, 6 years' experience in nutrition).

“They have more choices, more interesting colours, textures, like the boba.. Plus, the different levels of sweetness... they use ice... shredded ice... syrup, chocolate powder... They make the presentation very tempting for kids.” (Female expert, 25 years' health communication experience).

Topic 5: Low-sugar or sugar-free labelling. In the knowledge domain, only 27.7% of adolescents correctly answered, "If the sugar content is less than 1 g per serving, it does not need to be stated in the nutrition facts." This reflects a gap in understanding sugar content and food labelling. A biology teacher noted that the school canteen sells homemade iced tea and flavoured milk from a popular brand (Brand A). During the FGD, a male adolescent revealed he often chose flavoured milk from a brand without the healthier choice logo, indicating less than 6 g of sugar in 100 mL. The nutrition expert emphasized that these flavoured products are SSBs and suggested educating adolescents about the healthier choice logo, to help them identify better options. Survey data show a decline in milk consumption by fat content, with 61.3% of adolescents consuming no-fat milk, 49.4% consuming low-fat milk, and only 6.1% consuming full-cream milk. Furthermore, an adolescent with a high KAP score on SSBs mentioned checking calcium content and opting for products with higher percentages.

Teachers and experts noted the lack of specific programmes for food labelling education, except for the outdated *CEK BPOM* program (BPOM 2018). Research in Bogor highlights the need for improved food label awareness among adolescents. Targeted education programs

are essential, as current knowledge and label-reading behaviour are moderate, emphasizing the importance of risk communication in food safety (Hajijah & Retnaningsih 2024). Another study shows students who attend food safety workshops have better label-reading habits (Puspaningtyas *et al.* 2018). Training urban adolescents to compare sugar contents in SSBs and choose low-sugar options is recommended.

“[Brand A] milk itself is not SSBs, the flavoured ones are SSBs... you know healthier choices logo?” (Male expert, 6 years' nutrition science experience).

“For the packaging here [the hosted high school], we still provide [Brand A] milk. It contains sugar... is quite high. That's what we still sell... Yes, it's iced tea. But iced tea isn't packaged... she makes it and then sells it in a glass.” (Female teacher, 26 years' experience, West Jakarta).

“...For the UHT milk brand, I'll buy it... the strawberry flavour...” (Male adolescent, low KAP, West Jakarta).

“[Brand B] was recommended, I bought it, it's true, it has about 45%. That's why I prefer drinking one of the milk products (Brand B)...” (Female adolescent, high KAP, East Jakarta).

Topic 6: Checking SSBs' sugar content. In the attitude domain, only 43% of participants agreed with the statement, "I always check the amount of sugar in the packaging of the drinks I buy." Similarly, in the practice domain, just 35.9% and 34.8% of respondents correctly answered the questions, "I often check the amount of sugar added to my drinks before consuming them" and "I often compare the calories contributed by the sugar added to each drink before purchasing that product," respectively. A teacher emphasized the importance of training adolescents to read food labelling, especially for high sugar content in beverages, as most preferred labelled drinks. One adolescent checked food labelling for calcium content. Consistent with Kumarga *et al.* (2024), the healthier choice logo had limited influence, and adolescents showed lower food labelling awareness. Teachers were more likely to check food labelling than adolescents.

“...there will be training on reading food labels. If the sugar content is high, you have to limit it. Inform teenagers that consuming SSBs is unhealthy. Teenagers here prefer to buy drinks with food labels.” (Female teacher, 26 years' experience, West Jakarta).

“For milk, I just look at the calcium. I follow people's tips...” (Female adolescent, high KAP, West Jakarta).

FGDs and IDIs identified key topics for SSB education topics, such as highlighting their side effects, promoting water as a substitute, and encouraging homemade, lower-sugar drinks to prevent obesity, as highlighted in this study and supported by Zheng *et al.* (2019). Adolescents should also be trained to read food labelling and compare products to select lower-sugar options, with nutrition facts presented in tablespoons for easier understanding, as the nutrition expert recommended. Visual aids have been effective in improving students' understanding of nutritional information (Merillat & González-Vallejo 2020), and food safety workshops have proven helpful in reading food labelling (Puspaningtyas *et al.* 2018). Additionally, narrative-based education, as demonstrated by Bekalu *et al.* (2018), can enhance adolescents' retention and persuasion of SSB messages by improving relatability through storytelling, making content more memorable and effective for adolescents.

Strengths and limitations of this study

This mixed-methods study combines quantitative surveys with qualitative FGDs and IDIs, using Kemp's Model and the Transtheoretical Model to assess educational needs and behaviour change readiness in 488 adolescents from five Jakarta public senior high schools. The large sample and diverse data sources strengthen the finding's validity. Results offer practical strategies for improving adolescents' SSB-related knowledge and practices, though findings may not apply universally. Group dynamics and social desirability biases in FGDs were mitigated but not eliminated.

CONCLUSION

The study revealed poor knowledge, negative attitudes, and unhealthy practices regarding SSBs among urban adolescents. Educational needs include raising awareness on SSB risks, sugar content, and food labelling. Suggested formats for these materials are videos, interactive lectures, and social media campaigns. Future research should assess these approaches and explore peer and parental influences on adolescents' KAP.

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DECLARATION OF CONFLICT OF INTEREST

The authors have no conflict of interest.

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