

# Knowledge and Attitudes of Sugar-Sweetened Beverages Towards the Availability at Home Among Junior High School Students in Bandung

Citra Dewi Anggraini<sup>1</sup> and Kusharisupeni Djokosujono<sup>2</sup>

<sup>1</sup>Department of Nutrition, Institut Kesehatan Mitra Bunda, Batam, Kepulauan Riau, Indonesia

<sup>2</sup>Department Gizi Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat, Universitas Indonesia, Gedung F Lantai 2 Kampus Baru UI Depok, Jawa Barat, 16424, Indonesia

**Keywords:** Knowledge, Attitude, Availability of SSBs at Home.

**Abstract:** Teenagers with the availability of Sugar-Sweetened Beverages (SSBs) at home consumed more sweet drinks compared to teenagers whose sweet drinks were never available at home. The availability of SSBs is influenced by taste preferences, ease of purchase, and the belief that fruit-containing SSBs are healthy. This study aims to determine the relationship between Knowledge and Attitudes of Sugar-Sweetened Beverages (SSBs) towards the Availability of SSBs at Home among Junior High School Students in Bandung. This study was conducted in February and March 2020 at SMPN 2 Bandung with a total of 153 respondents, using a cross-sectional study design. Data is collected by filling out the questionnaires. The obtained data were analyzed using univariate and bivariate analysis with the chi-square test. Data were analyzed using the chi-square test. The results showed there is a relation between knowledge about sugar-sweetened beverages with the Availability of SSBs at Home ( $p= 0.039$ ) and there is a relation between attitudes about sugar-sweetened beverages with the Availability of SSBs at Home ( $p= 0.028$ ). The conclusion of this study is there is a relationship between Knowledge and Attitudes toward Sugar-Sweetened Beverages (SSBs) toward the Availability of SSBs at Home among Junior High School Students in Bandung.

## 1 INTRODUCTION

Sugar-sweetened beverages (SSBs) are defined as beverages with added sugar include sports drinks, sugar-improved tea and espresso, soda pops, and electrolyte-substitution drinks. The calories contained in SSBs give practically no dietary benefit and less satiety, when contrasted with strong food (Teng et al., 2020). A diet high in added sugars can lead to metabolic diseases such as type 2 diabetes mellitus and cardiovascular disease by direct and indirect mechanisms. Directly, fructose causes dysregulation of fat and carbohydrate metabolism. Indirectly, sugar increases energy intake which leads to a positive energy balance, increasing body weight gain, which in turn causes dysregulation of macronutrients such as carbohydrate and fat metabolism (Stanhope, 2016).

Based on Riset Kesehatan Dasar, the proportion of consumption of sugary drinks > 1 time/day at the national level increased from 53.1% in 2013 to 61.27% in 2018 (Kemenkes, 2013; Kemenkes, 2018). In the West Java region in 2018 consumption of sweet

drinks > 1 time per day with 63.91%, consumption of sweet drinks 1-6 times per week, with 29.03%, and <3 times per month is 7.06% (Ministry of Health RI, 2018). Consumption of calories from beverage ingredients in the West Java region is 75.95 kcal/day (BPS, 2018).

Knowledge and attitudes play an important role in shaping an individual's consumption of sugar-sweetened beverages (SSB). Knowledge refers to the awareness and understanding that individuals have about the health implications of consuming SSB. This includes knowing about the high sugar content, calories, and potential health risks associated with frequent consumption. Less knowledge related to SSBs was associated with higher SSB consumption (OR = 3.56) and adolescents who had a negative attitude tended to consume more carbonated drinks than adolescents who had a positive attitude (Fauzia, 2012; Jasti, Rubin & Doak, 2017).

Individuals who know well the negative impact of SSB on health and high sugar content, but still provide SSB drinks at home can lead to conflicts between knowledge and behavior.

## 2 SUBJECTS AND METHODS

The sample for this study was taken from subjects in the study population according to the research needs. Subjects that fit the research needs (eligible subjects) were determined through inclusion criteria. The inclusion criteria for this study were students of SMPN 2 Bandung who were in active status as grade 7 and 8 students in the even semester of the 2019/2020 school year and were present and filled out a questionnaire during the research. As for the exclusion criteria, namely, students who do not live with their parents or the student's parents are traveling, they cannot sign informed consent.

The technique used in taking samples in each class is systematic random sampling. The sample selection begins with the selection of schools that are in the favorite category, have a good environment, the location of the school in the city center makes it easier for students to consume SSBs, and the majority have high socio-economic status.

### 2.1 Measures

The questionnaire is a question sheet filled out by students, while the researcher is only a companion or guide. Another questionnaire was shown to the parents of the students who were brought home and returned to the researcher.

A questionnaire consisted of respondents' identity questionnaire regarding the availability of Sugar-Sweetened Beverages (SSBs) at home, the frequency of SSB consumption, and knowledge related to SSBs, attitudes related to SSBs.

The Knowledge Questionnaire related to SSBs was carried out to find out the types of SSBs, the benefits of consumption SSBs and the impact of SSBs consumption on health consisting of 15 questions, knowledge is good if the value of knowledge is  $\geq 60\%$ , and knowledge is poor if the value of knowledge is  $< 60\%$ . Attitudes related to SSBs, that is a person's response to a stimulus related to the respondent's view of the consumption of sweet drinks. Positive attitude if  $\geq$  median and negative attitude if  $<$  median.

Availability of SSBs at home which include milk with added sugar, tea with added sugar, regular soda, sports drinks, fruit drinks with added sugar, coffee drinks with added sugar, energy drinks, sweetened condensed milk drinks, and packaged chocolate drinks with added sugar. Rare category, if the total score  $<$  the mean of the total score of sweetened sugar availability beverages at home, and often category, if

the total score  $>$  the mean of the total score of availability of sugar-sweetened beverages at home.

## 3 RESULT

Table 1 shows that the majority of the respondents had good knowledge and were well-informed about sugar-sweetened beverages (SSBs) as many as 101 respondents (66%) and 52 respondents (34%) had less knowledge. Questions related to SSB knowledge included SSB content, types of SSBs, and the impact of SSB consumption. In addition, it is also known that most respondents have a positive attitude, or in this case, they tend not to like sugar-sweetened beverages, namely 91 respondents (59.5%), compared to respondents with a negative attitude, namely those who like sugar-sweetened beverages, namely 62 respondents (40.5%).

Most of the respondents had the availability of Sugar-Sweetened Beverages (SSBs) at home in the frequent category, namely as many as 81 respondents (52.9%), while as many as 72 respondents (47.1%) SSBs were rarely available at their homes.

Table 1: Distribution of Knowledge, Attitudes, and Availability at Home of Sugar-Sweetened Beverages in 2020 among Junior High School Students in Bandung.

| Variable                 | Total (n=153) |      |
|--------------------------|---------------|------|
|                          | n             | %    |
| <b>Knowledge of SSBs</b> |               |      |
| Poor                     | 52            | 34,0 |
| Good                     | 101           | 66,0 |
| <b>Attitudes of SSBs</b> |               |      |
| Negative                 | 62            | 40,5 |
| Positive                 | 91            | 59,5 |
| <b>Ability of SSBs</b>   |               |      |
| Often                    | 81            | 52,9 |
| Rare                     | 72            | 47,1 |

Data were analyzed using chi-square test. The results showed there is a relation between knowledge about sugar-sweetened beverages with the Availability of SSBs at Home ( $p= 0.039$ ) and there is a relation between attitudes about sugar-sweetened beverages with the Availability of SSBs at Home ( $p= 0.028$ ).

Table 2: Bivariate Analysis between Knowledge and Attitudes of SSBs to Availability of Sugar-Sweetened Beverages at Home in 2020 among Junior High School Students in Bandung.

| Variable                 | Availability of Sugar-Sweetened Beverages at Home |            | p-value (X <sup>2</sup> test) | OR (95% CI) |
|--------------------------|---|------------|-------------------------------|-------------|
|                          | Often n (%)                                       | Rare n (%) |                               |             |
| <b>Knowledge of SSBs</b> |   |            |                               |             |
| Poor                     | 21 (40,4)   | 31 (59,6)  | 0,039*                        | 0,463       |
| Good                     | 60 (59,4)   | 41 (40,6)  |                               |             |
| <b>Attitudes of SSBs</b> |   |            |                               |             |
| Negative                 | 40 (64,5)   | 22 (35,5)  | 0,028*                        | 2,217       |
| Positive                 | 41 (45,1)   | 50 (54,9)  |                               |             |

\* Significant level of  $p < 0,05$

#### 4 DISCUSSION

The results showed there is a relation of knowledge about sugar-sweetened beverages with the Availability of SSBs at Home ( $p= 0.039$ ). As knowledge levels were considered relatively low, this might mirror respondents with a low degree of mindfulness in pursuing beneficial routines related to keeping away from SSBs and restricting their admission overall (Teng et al., 2020). Research conducted by Wattelez shows that among adolescents who are categorized as “unknowing” for knowledge related to sugar consumption, those who are overweight have a higher intake of sugar-sweetened beverages than others (Wattelez et al., 2019).

In the study, it was found that 44 respondents (61.1%) had SSBs available at home in the rare category and consumed high SSBs, while 63 respondents (77.8%) had frequent SSBs available at home. Adolescents with low availability of SSBs at home and severe family food rules, restricting them to drink as much SSBs as they like, were bound to diminish their intake than understudies with high accessibility of SSBs and liberal weight control plans (Ezendam et al, 2010).

If SSBs are readily available at home, individuals with positive attitudes toward these beverages may see them as convenient and enjoyable. They might view SSBs as a quick and accessible way to satisfy their thirst or cravings. This research showed there is a relation between attitudes about sugar-sweetened beverages with the Availability of Sugar-Sweetened Beverages (SSBs) at Home ( $p= 0.028$ ). SSB consumers with often frequency tend to have a low understanding regarding the health impact of to consumption of SSBs which causes subjects to ignore

the sugar content in 1 bottle of SSBs (Miller et al., 2019).

Availability makes it easier for adolescents to access SSBs compared to other beverage options. This ease of access can lead to a higher likelihood of choosing SSBs over alternatives like water, milk, or unsweetened beverages. Research conducted by Sari shows that the dominant factor is correlated to SSB consumption in SMAN 47 Jakarta students the availability of SSB at home can influence SSB consumption (Sari et al., 2022). Adolescents might choose SSBs simply because they lack alternatives if healthier beverage options are less available at home

Parents might impact the admission of SSBs among youths since they are the primary purchasers in the family. Parents act as good examples and facilitators in affecting youngsters' weight control plans. The intense usage of SSBs among teenagers can be brought about by an absence of parental guidelines at home which limits the utilization of SSBs. Parents who are unable to apply restrictions on the consumption of SSBs in their children cause children to consume one to two SSBs per day (Gan et al., 2019).

Several research results show that educational/ social mediations are compelling in diminishing SSB utilization in young people and adults (Vézina et al., 2017; Gupta et al, 2018). Therefore, efforts to decreased consumption of SSBs in children could profit from the consideration of instructive mediations that engage kids and their folks/parental figures (in light of multiple factors; for instance, having command over the accessibility of beverages in the home and being good examples) to go with healthy decisions (Smirk et al., 2021).

#### 5 CONCLUSIONS

The conclusion of this study there is the relationship between Knowledge and Attitudes of Sugar-Sweetened Beverages (SSBs) toward the Availability of Sugar-Sweetened Beverages (SSBs) at Home among Junior High School Students in Bandung. The suggestion in this research is for parents to limit the availability of SSBs at home, and replace them with healthier drinks such as plain milk, less sugar or zero sugar soft drinks, or fruit juices without added sugar. Parents' attitudes are often strongly influenced by the well-being of their children. If parents are concerned about the health effects of SSBs, they might limit their availability at home to promote healthier choices for their family.

## REFERENCES

- BPS. 2018. Pola Konsumsi Penduduk Jawa Barat 2018. Badan Pusat Statistik. Provinsi Jawa Barat.
- Ezendam, N. P. M., Evans, A. E., Stigler, M. H., Brug, J., & Oenema, A. (2010). Cognitive and home environmental predictors of change in sugar-sweetened beverage consumption among adolescents. *British Journal of Nutrition*, 103, 768–774. May 1, 2020. <https://doi.org/10.1017/S0007114509992297>
- Fauzia, A. (2012). Hubungan antara Faktor Individu dan Faktor Lingkungan Kebiasaan Konsumsi Minuman bersoda pada Siswa SMP Islam PB Soedirman Jakarta Timur Tahun 2012. Skripsi, Program Studi Gizi, Universitas Indonesia, Depok.
- Gan, W. Y., Mohamed, S. F., & Law, L. S. (2019). Unhealthy lifestyle associated with higher intake of sugar-sweetened beverages among Malaysian school-aged adolescents. *International Journal of Environmental Research and Public Health*, 16(15). April 29, 2020. <https://doi.org/10.3390/ijerph1615278>
- Gupta A, Smithers LG, Harford J, Merlin T, Braunack-Mayer A. (2018). Determinants of knowledge and attitudes about sugar and the association of knowledge and attitudes with sugar intake among adults: a systematic review. *Appetite*. 126:185–94.
- Jasti, S., Rubin, R., & Doak, C. M. (2017). Sugar-sweetened Beverage Knowledge and Consumption in College Students. *Health Behavior and Policy Review*, 4(1), 37–45. <https://doi.org/10.14485/HBPR.4.1.4>
- Kemenkes RI (2013) Riset Kesehatan Dasar (RISKESDAS) 2013, Laporan Nasional 2013. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI.
- Kemenkes RI (2018) Laporan Nasional Riskesdas 2018 Badan Penelitian dan Pengembangan Kesehatan, Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan (LPB). Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI.
- Miller, C., Wakefield, M., Braunack-Mayer, A., Roder, D., O’Dea, K., Ettridge, K., Dono, J. (2019). Who drinks sugar sweetened beverages and juice? An Australian population study of behaviour, awareness and attitudes. *BMC Obesity*, 6(1), 1. October 10, 2019. <https://doi.org/10.1186/s40608-018-0224-2>
- Sari, N. W., Djokosujono, K., Utari, D. M., & Rohayati, N. (2022). Availability of Sugar-Sweetened Beverages at Home as The Dominant Factor Related to Its Consumption Among Students of SMAN (State High School) 47 Jakarta, Indonesia, in 2022. *Indonesian Journal of Public Health Nutrition (IJPHN)*, 3(1), 32–42. <https://doi.org/10.7454/IJPHN.V3I1.6176.G1502>
- Smirk, E., Mazahery, H., Conlon, C. A., Beck, K. L., Gammon, C., Mugridge, O., & von Hurst, P. R. (2021). Sugar-sweetened beverages consumption among New Zealand children aged 8-12 years: a cross sectional study of sources and associates/correlates of consumption. *BMC Public Health*, 21(1), 1–13. <https://doi.org/10.1186/S12889-021-12345-9/TABLES/7>
- Stanhope, K. L. (2016). Sugar consumption, metabolic disease and obesity: The state of the controversy. *Critical Reviews in Clinical Laboratory Sciences*, 53(1), 52–67. <https://doi.org/10.3109/10408363.2015.1084990>
- Teng, N. I. M. F., Juliana, N., Liyana Izlin, N., & Zulaikha Semaon, N. (2020). Knowledge, Attitude and Practices of Sugar-Sweetened Beverages: A Cross-Sectional Study among Adolescents in Selangor, Malaysia. *Nutrients*, 12(12). <https://doi.org/10.3390/nu12123617>
- Vézina-Im LA, Beaulieu D, Bélanger-Gravel A, Boucher D, Sirois C, Dugas M, et al. (2017). Efficacy of school-based interventions aimed at decreasing sugar-sweetened beverage consumption among adolescents: a systematic review. *Public Health Nutr*. 20(13):2416–31.
- Wattelez, G., Frayon, S., Cavaloc, Y., Cherrier, S., Lerrant, Y., & Galy, O. (2019). Sugar-sweetened beverage consumption and associated factors in school-going adolescents of New Caledonia. *Nutrients*, 11(2). October 10, 2019. <https://doi.org/10.3390/nu11020452>