

The Relationship Between Random Snacking Habits and Incidences of Diarrhea in Elementary School Kids

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ABSTRACT

This study looks at the connection between snack eating habits and diarrhea in elementary school kids. It's based on how important it is for kids to have safe and hygienic snacking habits to stay healthy. The research used a quantitative approach with a cross sectional design. There were forty fourth grade students from a primary school in Palembang, chosen using total sampling. Data came from questionnaires to check snack eating patterns and diarrhea cases, and then were analyzed descriptively and with a Chi Square test to see the link between the two. The results showed twenty five students sixty two point five percent had good snacking habits, and twenty one students fifty two point five percent didn't get diarrhea. The Chi Square test results showed a p value of zero point seven four three, so no statistically significant relationship was found between snack consumption patterns and the occurrence of diarrhea among the study respondents. These findings provide information about snack consumption patterns and diarrhea occurrences in school age children and suggest the need to consider other factors, such as food hygiene, sanitation, and handwashing habits, in future research. Practically, education about choosing safe snacks and practicing clean and healthy living habits needs to be continuously promoted through the involvement of students, parents, and schools. This study provides an empirical picture of the relationship between snack consumption patterns and diarrhea occurrences in the context of elementary school students.

Keywords: Snack consumption patterns, diarrhea, elementary school students, food hygiene.

1. INTRODUCTION

Random snacking is the habit of eating or drinking without paying attention to nutritional content, cleanliness, and food safety. This habit is often driven by children's attraction to the colors and flavors of snacks that look appealing, without considering their quality or impact on health (Saputra et al., 2026). Elementary school kids tend to eat snacks that are easily found around the school, but they don't necessarily pay attention to the nutritional content, cleanliness, or safety of the food. These snacks usually taste sweet or are high in fat and can be risky in terms of hygiene, both in how they're prepared and the ingredients used (Ulfia et al., 2025). Kids' habit of eating snacks randomly is influenced not just by their knowledge about nutrition, but also by their behavior and ability to make decisions when picking healthy snacks (Ulfia et al., 2025).

The impact of eating snacks on school children can be both positive and negative. The positive impact comes if the snacks consumed have enough nutritional content, so they can complement the child's nutritional needs. On the other hand, consuming snacks without paying attention to cleanliness and safety can negatively affect health, especially the digestive system. Contaminated or unhygienic snacks can cause digestive problems, one of which is diarrhea (Nasution et al., 2022).

Diarrhea is a condition marked by an increased frequency of bowel movements along with a change in stool consistency to more liquid or watery. Diarrhea often happens due to consuming food or drinks that have been contaminated by germs, viruses, or parasites (Putri & Suntura, 2025).

Globally, diarrhea is still a serious health problem among children. According to a study by (Zhu et al., 2025), there were about 2.43 billion new cases of diarrhea in children aged 0–14 worldwide in 2021. In Indonesia, the prevalence of diarrhea among children aged 5–14 was recorded at 138,465 cases, or 1.9%, based on data from the Indonesian Ministry of Health in 2023, as cited in a study by (Hajar et al., 2026). Meanwhile, according to the South Sumatra Provincial Health Office Profile in 2024, cited in the (Nuraini et al., 2026), there were 244,747 cases of diarrhea in South Sumatra. Palembang City had the highest number of cases, with 48,637 cases. The number of diarrhea cases in Palembang City also showed an increase from 25,356 cases in 2022 to 30,535 in 2023 and 48,637 in 2024.

Previous research on the relationship between snack consumption behavior and the occurrence of diarrhea in elementary school students shows different results. A study by (Labibah et al., 2025) on students at SDN 143 in Jambi City found that there was no significant relationship between snack consumption behavior and the occurrence of diarrhea, with a p-value of 0.372. On the other hand, a study by (Ulfia et al., 2025) on students at SDN Sukonolo in Malang Regency reported a significant relationship between snack consumption behavior and the occurrence of diarrhea, with a p-value < 0.01. These differing results indicate that the relationship between snack consumption patterns and diarrhea still needs further investigation. Based on the differences in previous research results, this study aims to find out the relationship between eating random snacks and the occurrence of diarrhea in elementary school children.

2. LITERATURE REVIEW / THEORETICAL FRAMEWORK

The habit of eating snacks carelessly is a behavior where children choose and consume snacks or drinks without properly considering their condition. School children's snacking habits can be influenced by their interest in flavors, like sweet, savory, and sour, as well as the ease of getting snacks at school or in their neighborhood. This habit is also related to picking snacks that may not be clean or safe. Factors affecting kids' snacking habits include attitudes, beliefs, snack availability, peer influence, family roles, pocket money, and mass media. Additionally, the habit of bringing meals from home can also affect children's decisions to buy snacks. These factors can influence how children choose and eat snacks (Nasution et al., 2022).

The snack choices of school children are also related to internal and external factors. Knowledge and attitude are internal factors that can influence a child's considerations when choosing

snacks, while snack availability and peer influence are external factors that also shape those choices. Children can pick snacks based on price, taste, texture, habits, and the appearance of the food, including bright colors. How easy it is to get snacks and the number of vendors around the school can also affect a child's choice. In addition, the cleanliness of the snacks and how the food is handled by sellers is something that needs to be considered to ensure the safety of the food consumed. Parents' role, the habit of bringing lunch from home, pocket money, and the family's socioeconomic condition are also part of the environment related to a child's snack-picking habits (Rahyuni et al., 2025).

Diarrhea is a digestive disorder that can happen due to infections from contaminated food or drinks. Eating snacks that aren't clean can increase the risk of diarrhea, especially if the food is cooked or stored in unhygienic ways. Pathogenic microorganisms like *Escherichia coli*, *Salmonella*, rotavirus, and *Giardia lamblia* can contaminate food when it's exposed to unclean environments or eaten without washing hands properly. School-aged kids are especially at risk because they don't fully understand the importance of choosing safe snacks and keeping clean before eating. That's why eating snacks carelessly can be one of the risk factors for diarrhea in children (Lestari & Hutasoit, 2026).

Research on the relationship between snack consumption behavior and the incidence of diarrhea in school-aged children has been conducted in several areas in Indonesia with varying results. (Putri & Suntara, 2025) carried out a study on 50 students from grades IV, V, and VI at SDN 008 Batam Kota, Kelurahan Baloi Permai, using a cross-sectional design and purposive sampling technique. The Chi-Square test results showed a p-value of 0.013 ($p < 0.05$), which means there is a significant relationship between snack consumption and the incidence of diarrhea in students. These results indicate that snack consumption behavior is related to the occurrence of diarrhea in school-aged children. A similar study was conducted by (Ulfia et al., 2025) on 100 students at SDN Sukonolo, Malang Regency. This study used a correlational design with a cross-sectional approach and stratified random sampling technique. The analysis using the Spearman rank test showed a p-value < 0.01 with a correlation coefficient of 0.957. These results indicate a significant relationship with a very strong correlation between snack consumption behavior and the occurrence of diarrhea. In addition, the study found that 76% of respondents had unhealthy snack consumption habits. These findings reinforce the importance of examining snack consumption patterns as one of the factors related to diarrhea in school-aged children. Meanwhile, a study by (Labibah et al., 2025) on 46 students at SDN 143 Kota Jambi looked at the relationship between personal hygiene, street food consumption behavior, and nutritional status with the incidence of diarrhea. This study used a quantitative approach with a cross-sectional design and total sampling technique. The Chi-Square test results showed that street food consumption behavior did not have a significant relationship with the incidence of diarrhea, with a p-value of 0.372 ($p > 0.05$). On the other hand, personal hygiene showed a significant relationship with the incidence of diarrhea, with a p-value of 0.003. These findings are different from two previous studies that found a significant relationship between street food consumption and diarrhea incidence. This difference in findings suggests that the relationship between street food consumption behavior and diarrhea incidence still needs to be studied further, taking into account the characteristics of the respondents and the research conditions.

Although some previous studies, such as those conducted by Putri and Suntara (2025) and Ulfia et al. (2025), showed a significant relationship between snack consumption and the occurrence of diarrhea, the empirical findings in this study align with the results of Labibah et al. (2025). In a study conducted on 40 fourth-grade elementary school students using a cross-sectional study design, bivariate analysis with the Chi-Square correlation test produced a p-value of 0.743 ($p > 0.05$). These results indicate that there is no statistically significant relationship between random snacking habits and the occurrence of diarrhea among students in the study area. The lack of a statistically significant relationship can be influenced by several factors, including the relatively small sample size ($n = 40$) and the role of other determining factors that were not directly studied, such as personal hygiene, handwashing habits with soap, drinking water quality, and home/school sanitation. Even though the statistical relationship is not significant, descriptively there still seems to be a tendency for students

with poorer snack consumption patterns to have a higher incidence of diarrhea. This supports the study's position that snack consumption patterns remain one aspect that should be considered in the domain of children's health behavior.

Based on the literature review and the conceptual framework that has been described, the hypothesis or proposition proposed in this study is that there is no significant relationship between random snack consumption patterns and the occurrence of diarrhea in elementary school students (H_0), or conversely, that there is a significant relationship between random snack consumption patterns and the occurrence of diarrhea in elementary school students (H_1).

3. RESEARCH METHOD

This study uses a quantitative approach with a cross-sectional design to find out the relationship between random snacking habits and diarrhea incidents in elementary school students. The study population consisted of 40 fourth-grade students, and the entire population was used as a sample through a total sampling technique. Data were collected using a printed questionnaire with 15 questions about snacking habits, including how often they snack and aspects of food hygiene and safety, and one closed question about diarrhea incidents in the past month. Univariate analysis was carried out to describe the frequency distribution and percentage of each variable. Bivariate analysis used the Chi-Square test to find out the relationship between irregular snack consumption patterns and instances of diarrhea, with a significance level of 0.05. The results of the analysis showed a p-value of 0.743, so no statistically significant relationship was found between irregular snack consumption patterns and diarrhea occurrences among the students studied.

4. RESULTS

This study involved 40 elementary school students as respondents. The research results are presented descriptively to show the characteristics of the respondents, snacking habits, and occurrences of diarrhea. Bivariate analysis was also carried out to find out the relationship between random snacking patterns and instances of diarrhea.

Table 1 shows the respondents' characteristics based on gender, age, and grade. The majority of respondents were male, with 21 students (52.5%). In terms of age, most respondents were 10 years old, totaling 27 students (67.5%). Meanwhile, based on grade, 21 students (52.5%) came from class IV A.

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	21	52,5
	Female	19	47,5
Age	9	7	17,5
	10	27	67,5
	11	6	15,0
Class	IV A	21	52,5
	IV B	19	47,5
Total		40	100,0

Table 2 shows the distribution of snack consumption patterns and the occurrence of diarrhea among respondents. Most respondents had good snack consumption patterns, with 25 students (62.5%). A total of 12 students (30.0%) were in the moderate category, while 3 students (7.5%) were in the poor category. Based on the occurrence of diarrhea in the past month, 21 students (52.5%) did not experience diarrhea, while 19 students (47.5%) did.

Variable	Category	Frequency (n)	Percentage (%)
Snack consumption habits	Good	25	62,5

	Enough	12	30,0
	Not enough	3	7,5
Diarrhea occurrence	No diarrhea	21	52,5
	Diarrhea	19	47,5
Total		40	100,0

Table 3 presents the results of the analysis of the relationship between snack consumption patterns and the occurrence of diarrhea. Among respondents with good snack consumption patterns, 11 students (44.0%) experienced diarrhea. In the fair category, 6 students (50.0%) experienced diarrhea. Meanwhile, in the poor category, 2 students (66.7%) experienced diarrhea.

Snack Consumption Habits	No Diarrhea, n (%)	Diarrhea, n (%)	Total, n (%)
Good	14(56,0)	11 (44,0)	25 (100,0)
Enough	6 (50,0)	6 (50,0)	12 (100,0)
Not enough	1 (33,3)	2 (66,7)	3 (100,0)
Total	21 (52,5)	19 (47,5)	40 (100,0)

The Chi-Square test results showed a value of 0.595 with 2 degrees of freedom and a p-value of 0.743. The p-value is greater than 0.05, so no statistically significant relationship was found between random snack consumption patterns and the occurrence of diarrhea in the study respondents.

5. DISCUSSION

The results of this study show that there is no statistically significant relationship between the pattern of eating snacks randomly and the occurrence of diarrhea in elementary school students. This is proven by the Chi-Square test results with a p-value of 0.743, which is higher than the significance level of 0.05. Therefore, the null hypothesis (H_0) cannot be rejected. These results indicate that the snacking patterns measured in this study have not been proven to have a significant relationship with the occurrence of diarrhea in the respondents. However, this does not mean that snacking habits play no role in the occurrence of diarrhea, as there may be other factors that also influence it. Based on the results of the descriptive analysis, 25 students (62.5%) have a good snacking consumption pattern, while 19 students (47.5%) experienced diarrhea in the past month. This shows that even though most students have a good snacking consumption pattern, diarrhea still occurs among the study respondents. This indicates that the occurrence of diarrhea should not only be looked at from snacking habits but also needs to consider other factors.

Based on the research theoretical framework, children's snacking habits are influenced by various factors, such as knowledge, attitudes, food availability, peer influence, family role, pocket money, and food hygiene. The theoretical framework also explains that contaminated food and drinks, as well as poor personal hygiene, can increase the risk of diarrhea. Therefore, diarrhea occurrences are not only related to snacking patterns but can also be influenced by food hygiene, food storage methods, drinking water quality, handwashing habits, and environmental sanitation (Pitriyanti et al., 2023).

This study's findings align with (Labibah et al., 2025) research on students at SDN 143 in Jambi City, which showed no significant link between snack consumption habits and diarrhea, with a p-value of 0.372. That study also found a significant connection between personal hygiene and diarrhea, with a p-value of 0.003. This suggests that personal hygiene is an important factor to consider in understanding diarrhea occurrences in school kids. On the other hand, (Putri & Suntara, 2025) found a significant relationship between snack consumption and diarrhea among students at SDN 008 in Batam City, with a p-value of 0.013. Similar results were reported by (Ulfa et al., 2025) among students at SDN Sukunolo, Malang Regency, showing a significant link between snack consumption habits and diarrhea, with a p-value less than 0.01. The difference in research results shows that the relationship between snack consumption patterns and the occurrence of diarrhea can vary based on respondents'

characteristics and research environment conditions. Differences in hygiene habits, sanitation conditions, and methods of measuring snack consumption behavior could be possible explanations, but this study cannot yet determine the factors causing these differences.

From a practical standpoint, this study shows that health education about preventing diarrhea is still important to give to elementary school students. This aligns with the research by (Susanti et al., 2025) at SDN Simokerto 1 Surabaya, which provided education on diarrhea and clean and healthy living habits (PHBS) through presentations, posters, and educational games. Evaluation results using pre-tests and post-tests showed an increase in students' knowledge about diarrhea, how to prevent it, handwashing habits, and choosing healthy and safe foods. Based on these findings, health education can be applied in schools to improve students' understanding of the importance of hygiene and selecting safe snacks. Schools can provide repeated education, get students used to washing their hands with soap before eating, and make sure there are adequate handwashing facilities. Besides that, guiding school canteens to provide clean and healthy food is also needed to support the implementation of these behaviors. Even though this study didn't find a significant link between snack consumption patterns and diarrhea incidents, educational efforts are still relevant as a promotive and preventive measure.

The results of this study are expected to provide information for schools and parents about snacking habits in elementary school children. Although this study did not find a significant link between snacking habits and the occurrence of diarrhea, choosing clean and safe snacks is still important for keeping children healthy. Therefore, schools and parents are encouraged to get children used to washing their hands before eating and to choose snacks that are kept clean. These efforts can support the adoption of clean and healthy living habits and help prevent diarrhea in children.

6. CONCLUSION

This study aimed to find out the relationship between snack consumption patterns and the incidence of diarrhea in elementary school students. The results showed that most respondents had good snack consumption patterns (62.5%), while 47.5% of respondents reported having diarrhea in the past month. The Chi-Square test results showed a p-value of 0.743 ($p > 0.05$), so no significant relationship was found between snack consumption patterns and diarrhea incidence among the study respondents. These findings suggest that the snack consumption patterns measured in this study did not show a statistically meaningful relationship with the occurrence of diarrhea. This study provides an overview of snack consumption patterns and the occurrence of diarrhea among elementary school students. However, this study has some limitations, namely the relatively small number of respondents and data collection using questionnaires. Therefore, future studies are recommended to involve a larger number of respondents and consider other factors that may be related to the occurrence of diarrhea, such as handwashing habits, food hygiene, water quality, and environmental sanitation.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this study.

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