

**DETERMINANTS OF HEALTHY SNACK CHOICES AMONG
ELEMENTARY SCHOOL STUDENTS: THE ROLES OF KNOWLEDGE,
ATTITUDES, AND LUNCH BOX HABITS**

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ABSTRACT

This study aims to determine the determinants of healthy snack choices among students at SD Negeri 19 Kepahiang, focusing on the roles of knowledge, attitudes, and lunch box habits. The method used is a cross-sectional design involving 40 students selected through purposive sampling. Data were collected using a structured questionnaire and analyzed with descriptive statistics, Chi-square tests, and logistic regression. The results of the study show that most students had good knowledge (62.5%), positive attitudes (67.5%), and lunch box habits (55.0%). Overall, 65.0% of students reported choosing healthy snacks. Chi-square analysis revealed significant associations between healthy snack choices and knowledge ($p=0.03$), attitudes ($p=0.02$), and lunch box habits ($p=0.01$). Multivariate analysis identified lunch box habits as the dominant factor influencing healthy snack choices (OR=4.21; 95% CI: 1.20–14.78). Conclusion, knowledge, attitudes, and lunch box habits are important determinants of healthy snack choices among elementary school students, with lunch box habits being the most influential factor.

Keywords: Attitudes, Healthy Snacks, Knowledge, Lunch Box

INTRODUCTION

Elementary school-aged children are highly susceptible to environmental influences, including daily food choices. At this stage, children begin to develop independence in determining their food preferences, particularly regarding snacks available at school and in the surrounding environment. School snacks serve as an important source of daily energy; however, most of these snacks are low in nutritional quality, high in sugar, salt, and fat, and often contain food additives that may pose health risks (WHO, 2020). Continuous consumption of unhealthy snacks may affect short- and long-term health, including impaired concentration, obesity, and later degenerative diseases.

Globally, unhealthy eating patterns among children are a major risk factor for early childhood obesity. WHO (2020) reported that in 2020, approximately 39 million children under the age of five were overweight or obese. This reflects the burden of early childhood overnutrition, partly influenced by exposure to processed, low-nutrient snacks.

In Indonesia, this issue remains a serious concern. The 2018 Basic Health Research (Riskesdas, 2018) reported that the prevalence of sweet food consumption among school-aged children reached 53.1%, salty food 45.7%, and sugar-sweetened

beverages 61.3%. These data indicate that more than half of school children are routinely exposed to potentially harmful foods and drinks. Excessive consumption of sweet, salty foods and sugary beverages is associated with higher risks of dental caries, obesity, type 2 diabetes, and hypertension later in life (Kementerian Kesehatan Republik Indonesia, 2018).

At the local level, the quality of school snacks in Bengkulu Province is still concerning. A survey by the Bengkulu Provincial Health Office (2021) showed that 48% of school snacks did not meet health standards in terms of nutrition and safety. In Kepahiang Regency, most elementary schools have not fully implemented healthy canteen programs, so students rely heavily on snacks sold around schools. This increases the likelihood of daily unhealthy food consumption, affecting nutritional status, immunity, and academic performance.

Besides environmental factors, snack choice behaviors are influenced by internal factors, such as nutritional knowledge and attitudes, and external factors, like lunch box habits. Adequate nutritional knowledge helps children distinguish between healthy and unhealthy foods, while positive attitudes reflect readiness to adopt healthy behaviors. Bringing lunch from home is a key preventive strategy, reducing reliance on external snacks and ensuring adequate nutrition and food safety (Rahmawati et al., 2020; Pratiwi & Andriani, 2021).

Previous studies in Indonesia have examined either knowledge, attitudes, or lunch box habits separately. However, research that simultaneously analyzes these three factors in elementary school children, particularly in the local context of Kepahiang, remains limited. This study therefore provides new insights into the dominant determinants of healthy snack choices in this region.

Therefore, this study aims to identify the determinants of healthy snack choices among elementary school students, focusing on the roles of knowledge, attitudes, and lunch box habits at SD Negeri 19 Kepahiang. The findings are expected to serve as evidence for schools and parents in designing effective interventions and to contribute to strengthening health promotion programs that encourage healthy eating habits in children from an early age.

RESEARCH METHODS

This observational analytic study with a cross-sectional design was conducted at SD Negeri 19 Kepahiang in August 2025. The population consisted of all students in grades IV–VI, and a purposive sampling method was used with inclusion criteria: present during the study, willing to participate, and having parental consent. A total of 40 students were included.

The instrument was a structured questionnaire covering student characteristics (age, gender, pocket money), knowledge of healthy snacks (10 true/false questions, $\geq 75\%$ = good), attitudes toward healthy snacks (10 Likert-scale statements, $\geq 75\%$ = positive), lunch box habits (yes/no), and snack choice behavior (healthy or unhealthy).

Data were collected after explaining the study objectives, with approval from the school principal and parents. Data analysis was performed using SPSS. Descriptive statistics were used for frequency distributions and percentages, Chi-Square tests assessed associations between variables, and logistic regression identified dominant factors influencing healthy snack choices

RESULTS

Univariate Analysis Respondent Characteristics

Table. 1
Respondent Characteristics

Characteristics	n	%
Gender		
Male	18	45,0
Famale	22	55,0
Age		
7-9 years	15	37,5
10-12 years	25	62,5
Pocket Money		
≤ IDR 5,000	14	35,0
> IDR 5,000	26	65,0
Jumlah	40	100,0

Most respondents were aged 10–12 years (62.5%), with slightly more females (55%) than males (45%). Most had pocket money \geq IDR 5,000 per day (65%), potentially influencing snack-purchasing behavior.

Table. 2
Distribution of Knowledge, Attitude, Lunch Box Habits, and Snack Choice Behavior

No	Variable	f	%
1	Knowledge		
	Good	25	62,5
	Poor	15	37,5
2	Attitude		
	Positive	27	67,5
	Negative	13	32,5
3	Lunch Box Habit		
	Yes	22	55,0
	No	18	45,0
4	Snack Choice Behavior		
	Healthy	26	65,0
	Unhealthy	14	35,0
Total		40	100,0

Majority of students had good knowledge (62.5%) and positive attitudes (67.5%). More than half routinely brought lunch boxes (55%). Healthy snack choice behavior was observed in 65% of students, while 35% still chose unhealthy snacks.

Table. 3
Associations between Knowledge, Attitude, Lunch Box Habits, and Healthy Snack Choices

Variable	Snack Choice Behavior				Total		p- Value
	Healthy		Unhealthy		N	%	
	N	%	N	%			
Knowledge							
Good	19	76,0	6	24,0	25	100	0.03
Poor	7	46,7	8	53,3	15	100	

Attitude							0.02
Positive	21	77,8	6	22,2	27	100	
Negative	5	38,5	8	61,5	13	100	
Lunch Box Habit							0.01
Yes	19	86,4	3	13,6	22	100	
No	7	38,9	11	61,1	18	100	

Chi-Square analysis showed significant associations between knowledge, attitude, and lunch box habits with healthy snack choices. Students with good knowledge chose healthy snacks more (76%), positive attitudes were associated with 77.8% healthy snack selection, and lunch box habits had the strongest effect (86.4% vs. 38.9%).

Table. 4
Logistic Regression Analysis of Dominant Factors

Variable	OR	95% CI	p-value
Knowlede	2,65	0,82 – 8,59	0, 10
Attitude	3,12	0,94 – 10,42	0, 07
KebLunch Box Habit	4,21	1,20 – 14,78	0,02

Multivariate analysis indicated that lunch box habits were the dominant factor influencing healthy snack choices. Students who brought lunch had 4 times higher odds of selecting healthy snacks compared to those who did not.

DISCUSSION

The findings of this study indicate that nutritional knowledge has a significant relationship with healthy snack choices among students at SD Negeri 19 Kepahiang. Children with adequate knowledge are better able to distinguish between healthy and unhealthy foods, including evaluating sugar, salt, and fat content in snacks. This knowledge enables them to make appropriate decisions regarding safe and nutritious snack consumption. This study is in line with recent findings that emphasize the important role of nutritional knowledge in shaping the eating behavior of elementary school children (Mancone et al., 2024; Gutkowska et al., 2025).

Similarly, Martony et al., (2023) emphasized that educational interventions using game-based methods, such as snakes and ladders, improved children's knowledge of healthy snacks. This suggests that creative and enjoyable learning strategies can enhance both understanding and motivation to apply knowledge in daily life. International research also supports this trend. Harlistyarintica & Fauziah (2020); Sofiani et al., (2020) reported that children with nutritional knowledge were more likely to choose healthy foods, and such knowledge could serve as an important predictor of eating behavior. However, other studies highlighted that knowledge alone is not sufficient without supportive environments, such as the availability of healthy snacks at school or at home (Sari et al., 2021). Thus, nutrition education strategies should be integrated with environmental interventions to promote consistent healthy behaviors.

A positive attitude toward healthy snacks has been shown to significantly influence snack selection behavior. Children with a positive attitude toward healthy food are more motivated to apply their nutritional knowledge. This finding is consistent with recent studies indicating that a positive attitude is correlated with healthy food choices among school-aged children (Nafista et al., 2023). However, other research emphasizes that a positive attitude alone is not sufficient if it is not supported by a healthy school environment (Winarni et al., 2024). In addition, international studies show a similar trend. According to Russell et al., (2023), children who have nutritional knowledge are more likely to choose healthy foods, and such knowledge can be an important predictor of eating behavior. Strengthening attitudes therefore requires multilevel strategies at both school and household levels to ensure consistent adoption of healthy behaviors.

Besides environmental factors, snack choice behaviors are influenced by internal factors, such as nutritional knowledge and attitudes, and external factors, like lunch box habits. Adequate nutritional knowledge helps children distinguish between healthy and unhealthy foods, while positive attitudes reflect readiness to adopt healthy behaviors. Bringing lunch from home is a key preventive strategy, reducing reliance on external snacks and ensuring adequate nutrition and food safety (Rahmawati et al., 2020; Pratiwi & Andriani, 2021).

In addition to knowledge and attitudes, lunch box habits emerged as the dominant factor in this study. Children who routinely brought lunch from home were less likely to buy random snacks, which ensured better nutritional intake. This finding is consistent with Pratiwi & Andriani (2021), who showed that bringing lunch from home is an effective strategy to increase healthy food consumption among children. Martony et al., (2023) further highlighted that educational interventions can encourage children to develop regular lunch box habits, as they become more aware of the importance of balanced nutrition. Parental involvement in preparing healthy meals is also crucial.

Saputri et al. (2022) found that parental education on healthy lunch menus significantly improved children's nutritional intake. Lunch box habits not only directly influence children's behavior but also indirectly reduce peer and environmental influences by providing a daily healthy alternative. International research aligns with this perspective. Story et al. (2021) noted that children who brought lunch from home had healthier dietary patterns, including higher intake of fruits and vegetables and lower consumption of foods high in sugar, salt, and fat. Therefore, lunch box habits can be considered a practical and effective intervention to promote healthy snack choices and prevent long-term health risks, including obesity and metabolic disorders.

CONCLUSION

The results of this study indicate that knowledge, attitudes, and the habit of bringing lunch boxes are significantly associated with healthy snack choices among students of SD Negeri 19 Kepahiang. Children who possess good nutrition knowledge and positive attitudes toward healthy foods tend to make healthier snack choices. However, among these three factors, the habit of bringing lunch from home emerged as the dominant factor most strongly influencing healthy snack selection behavior.

SUGGESTIONS

This study emphasizes the need for school-based nutrition interventions that simultaneously involve students, teachers, and parents. Implementing healthy canteen programs that provide nutritious snacks, interactive nutrition education, and reinforcement of the habit of bringing lunch boxes can consistently improve healthy snack choices. Such interventions should be accompanied by regular monitoring to ensure the sustainability of healthy behaviors among children.

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