Analysis of the Effect of Knowledge Level and Nutritional Status Related to the Concept of Healthy Snacks

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Abstract: The importance of understanding the concept of healthy food has raised awareness about choosing healthy snacks for school children. This study aims to analyze the effect of knowledge level and nutritional status related to the concept of healthy snacks. This research uses a cross-sectional method, which is a way of approaching or collecting data with pre-tests and post-tests, anthropometric measurements, and student data analysis. The sample consists of 37 students from SDN I Tambaksari Surabaya aged 12-13 years. The results show no significant relationship between nutritional status and knowledge of healthy snacks (p-value = 0.162 > α = 0.05) and between gender and increased knowledge of healthy snack concepts (p-value = 0.131 > α = 0.05). The conclusion of this study indicates that the respondents' knowledge and gender do not affect their behavior in choosing healthy snacks.

1   INTRODUCTION

Children are the most valuable long-term investment. Amid daily busy activities, snacks become an essential part of children's diet. Children often buy food outside without considering its cleanliness and content. The importance of maintaining a healthy diet has increased awareness of the need for healthy snacks. Healthy snacks not only satisfy hunger but also provide good nutritional benefits for the body.

Awareness of the importance of healthy snacks for children needs to be instilled not only at home but also at school and in their play environment. Lack of knowledge is one of the reasons children continue to consume unhealthy snacks. Parents, teachers, and caregivers play key roles in providing and educating children about good food choices. Initiatives such as nutrition education programs in schools, promoting healthy food in canteens, and providing healthy snack options at home can help form good eating habits from an early age (Sumarni et al., 2020).

In addition to education, innovation in creating attractive and delicious snacks is also very important. Healthy snacks must be able to compete with less healthy snacks in terms of taste and visual appeal.

Serving food becomes an attraction because the first thing a person does in choosing food is looking at the presentation and decoration. Using natural ingredients, reducing unnecessary additives, and creative presentation can make healthy snacks more appealing to children (Hartatik, 2022).

Thus, encouraging healthy snack consumption among children is not just about providing better options but also about building a strong foundation for the future generation's health. This is an essential step in preventing future health problems and ensuring children grow up healthy and strong.

2   METHODS

In this study, the researchers used the likelihood test, a statistical approach used to make inferences about model parameters based on observed data. This activity was carried out directly through the provision of education on healthy snacks in the school environment and filling out community service information. This method is implemented to interact

directly with the target as an effort to promote healthy snacks consumption for school children. The activities were carried out in several stages, including.

Anthropometric Measurements

In this stage, height and weight measurements were carried out with the target, namely school children aged 12-13 years. Anthropometric measurements were carried out directly by two coordinators. The first coordinator measured height, while the second coordinator measured weight.

Figure 1: Anthropometric Measurements

Community Service Information Filling

After the anthropometric measurements, the community service team requested permission from the class teacher to collect data through this information filling. Before filling out the community service information, the team provided instructions on how to fill out the information.

Pre-Test Question Filling

In this stage, pre-test filling was used to measure students' knowledge about healthy snacks before being given education. Students were asked to fill out questionnaires individually in a conducive classroom atmosphere. The community service team gave 30 minutes for filling out the pre-test questionnaires. The researchers ensured that the students understood the instructions clearly and well.

Figure 2: Pre-Test Question Filling

Providing Education on The Importance of Consuming Healthy Snacks for School Children

After filling out the pre-test questionnaires, students were given education related to healthy snack consumption using lecture, discussion methods, and a session closed by a volunteer from one of the sixth-grade students to deliver the material obtained for 30 minutes.

Post-Test Questions Filling

In this stage, post-test filling was used to measure students' knowledge about healthy snacks after being given education. Students were asked to fill out questionnaires individually in a conducive classroom atmosphere. The community service team gave 30 minutes for filling out the post-test questionnaires. The researchers ensured that the students understood the instructions clearly and well.

Figure 3: Post-Test Question Filling

Data Analysis of Students

Researchers collected data from the pre-test and post-test answers that had been collected and analyzed to measure students' knowledge levels about healthy snack consumption. Data were taken through a statistical approach by comparing pre-test and post-test results to assess the relationship between knowledge level and nutritional status of school children regarding healthy snacks.

Time of implementation

This activity was carried out for one day at SDN Tambaksari I Surabaya, Jl. Mundu No.35, Tambaksari, Tambaksari, Surabaya, East Java, 60136. The stages included coordination between the community service team and the school, permission from the class teacher, anthropometric measurements, community service information filling, pre-test questionnaire filling, education intervention, post-test questionnaire filling, and closing.

3 RESULTS

Table 1: Sample Distribution by Gender

| Nutritional Status | Gender | | | | total | | p* |
| | Male | | Female | | | | |
	n	%	n	%	n	%	
Less	3	33.3	5	62.5	9	100	
Normal	8	42.1	11	57.9	19	100	0,131
More	5	55.5	4	44.5	9	100	
total	16		20		36		

* p-value from likelihood test

Effect of Nutritional Status Based on Respondent Gender on Knowledge Improvement in Healthy Snack Concepts

Based on the data analysis using the likelihood test, a p-value of $0.131 > \alpha = 0.05$ was obtained, meaning Ha is rejected, and Ho is accepted. Thus, it can be concluded that there is no relationship between gender and the improvement of healthy snack concepts knowledge among students at SDN 1 Tambaksari Surabaya, meaning the respondents' gender does not affect the improvement of healthy snack concepts knowledge.

Table 2: Distribution Based on Nutritional Status

| Nutritional Status | Knowledge of Healthy Snack Concepts | | | | | | p* |
| | Adequate | | High | | | | |
	n	%	n	%	n	%	
Less	1	12.5	7	87.5	8	100	
Normal	2	10.52	17	89.48	19	100	0,162
More	1	11.11	8	88.89	9	100	
total	4		32		36		

* p-value from likelihood test

Effect of Nutritional Status Based on Knowledge of Healthy Snack Concepts on Knowledge Improvement in Healthy Snack Concepts

Based on the data analysis using the likelihood test, a p-value of $0.162 > \alpha = 0.05$ was obtained, meaning Ha is rejected, and Ho is accepted. Thus, it can be concluded that there is no relationship between nutritional status and the knowledge level of healthy snack concepts among students at SDN 1 Tambaksari Surabaya, meaning the respondents' knowledge does not affect their behavior in choosing snacks.

4 DISCUSSIONS

Snacks are foods consumed between main meals and are one of the sources of calorie intake. Snacks

contribute about 20% of the total daily calories consumed by school students. It is essential to choose snacks not only based on the students' interests and preferences but also on their nutritional needs. Additionally, snacks should not reduce their appetite for main meals. Examples of healthy snacks that can be chosen include fresh fruits and vegetables and their processed forms like fruit juices, nuts such as walnuts, hazelnuts, and almonds, and simple biscuits (Bastami et al., 2019).

In this study, we conducted assistance to improve the knowledge concept of healthy snacks. During the community service to the students at SDN 1 Tambaksari, we observed that the students were very active in gaining knowledge about healthy snacks concepts. During the material presentation session, they paid attention, and during the question session about healthy snacks, they were eager to answer and explain their conclusions about the concept of healthy snacks. The results of the post-test averages show that their knowledge about healthy snacks was very good.

This research aims to understand the knowledge about healthy snacks and nutritional status among 6A grade students at SDN 1 Tambaksari Surabaya, and to determine the relationship between gender and nutritional status with increased knowledge about healthy snacks. An individual's nutritional status reflects the balance between the nutritional intake received and the body's nutritional needs. To achieve good nutritional status, the body must be able to utilize these nutrients to maintain energy reserves and replace lost nutrients. Good nutritional status is an important indicator to assess the development and growth of children, while knowledge about healthy snacks can influence the food choices that might be consumed daily.

The Relationship Between Gender and Knowledge About Healthy Snacks at SDN Tambaksari I Surabaya

This study was conducted to test the hypothesis that there is a significant relationship between nutritional status and knowledge of healthy snacks using the likelihood test in statistics because the Pearson chi-square test was not met. The results in Table 1 show that there is no significant relationship between gender and the increase in knowledge of the healthy snack concept in elementary school children. The results of the likelihood ratio test yielded a p-value of more than 0.05, namely 0.131, indicating that there is no significant relationship between the gender of the respondents and the increase in knowledge of the healthy snack concept.

These research results are similar to those of a study conducted on elementary school students in the Bukit Bestari District, Tanjung Pinang City, Riau Islands Province by (Pitriyanti et al., 2023). In their study, it was found that there was no relationship between gender and knowledge about healthy snacks in elementary school children. This explains that both male and female respondents have a good level of knowledge about healthy snacks. This is because our respondents were 6th-grade students, who already have a sufficient understanding of the concept of healthy snacks

The Relationship Between Children's Nutritional Status and Knowledge About Healthy Snacks at SDN Tambaksari I Surabaya

In the study on the relationship between knowledge about healthy snacks and nutritional status among students of SDN I Tambaksari Surabaya, the statistical likelihood test results from the SPSS 26 for Windows calculation were 0.162, which means that the P-value > α, namely 0.162 > 0.05, thus, Ha is rejected and H0 is accepted. There is no correlation between knowledge about healthy snacks and the nutritional status of children at SDN I Tambaksari Surabaya. This is indicated by the majority of respondents achieving maximum scores on both the pre-test and post-test questions. Based on these results, the level of knowledge and nutritional status of students at SDN I Tambaksari Surabaya does not have a significant relationship with the concept of healthy snacks. This shows that the level of knowledge about healthy snacks does not directly influence the nutritional status of children.

This is not in line with the research conducted by (Puspita et al., 2024) which states that there is a correlation between knowledge and the nutritional status of children. In their study, nutritional status has a very close relationship with the development of gross motor skills in children, meaning that the lower the nutritional status of the child, the lower the child's motor development and vice versa. Whereas in our study, knowledge does not affect the nutritional status of children. This could be due to other factors such as eating patterns, meal frequency, and physical activity which have a greater influence on the nutritional status of the students. Therefore, these two studies have different results.

Thus, it is hoped that students can choose healthy snacks that are not only delicious but also nutritious. Because students who have good nutritional status, consumption patterns, and behavior in choosing snacks will have a healthier body and an ideal physique.

5 CONCLUSIONS

The conclusion of this study is that, based on data analysis using the Likelihood test, no significant relationship was found between nutritional status and the level of knowledge about healthy snacks (p-value = $0.162 > \alpha = 0.05$), and there is no significant relationship between gender and the increase in knowledge of the concept of healthy snacks (p-value = $0.131 > \alpha = 0.05$) among grade VI A students of SDN I Tambaksari, Surabaya. This indicates that the knowledge and gender of the respondents do not influence their behavior in choosing healthy snacks. Other factors such as dietary patterns and physical activity may have a greater impact on the nutritional status of the students. Therefore, it is hoped that students can choose snacks that are not only tasty and attractive but also nutritious to maintain health and achieve optimal nutritional status.

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