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Influence Of Live Modeling On Healthy Snacks And Fruit-Vegetable Intake

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Abstract: School-age children are a risk group because of their tendency to imitate behavior both at home and outside the home. One thing to pay attention to is the habit of eating and consuming vegetables and fruits. Characteristics of children in imitating the behavior of others as a model in implementing everyday behavior. This study aims to determine the effect of live modeling on vegetable and fruit consumption behavior in students at SDN 020 Samarinda. Pre-experiment research design without control. The population in this study amounted to 57 students. The technique of taking purposive sampling as many as 11 respondents. The instrument used in the study used an observation sheet on vegetable and fruit consumption behavior. The statistical analysis used was the Wilcoxon test. There is an effect of giving live modeling on healthy snacking behavior and consumption of fruit and vegetables (0.009; 0.003 < α 0.05). This means that there is an influence of live modeling on the behavior of snacking on sehan and consumption of vegetables and fruits

Keywords: Live Modeling, Vegetable Consumption, Healthy Behavior, Elementary School Students

1. Introduction

Food is anything that is consumed by humans (1). The risk of not consuming enough fruit and vegetables will result in a lack of nutrients in the body which will result in various diseases, namely malnutrition, eating disorders in the form of anorexia and bulimia nervosa, obesity and anemia (2).

According to the 2018 East Kalimantan Riskesdas data, the prevalence of obesity in adolescents aged 13-15 years was 9.2% obesity. Data in Samarinda city aged 8-10 years was 17.4% (10.3% obese and 7.1% obese. The prevalence of children who consume vegetables and fruits from the proportion of eating 1-2 servings/day aged 5 years and over is only 57.5%, 3-4 servings/day only 27.0% and ≥5 servings/day only 9.2% (3).

World health organization (WHO) and Food and Agriculture Organisation (FAO) stated that the consumption of unhealthy food causes 14% of digestive tract cancer, 11% of coronary heart disease (CHD) and 9% of stroke (4). Further explained from the results of the Basic Health Research (Riskesdas) Indonesian people consume vegetables and fruits ≤10%. This means that 90% of the population does not consume vegetables and fruits (5)

Good or bad behavior that occurs in children is very dependent on the parents, the child's behavior

will be carried by the child to face the life to come (6–9). According to Spradley (2001, in Akbar, 2019) children are a special group who have the potential to experience health problems (10). Recommended consumption of vegetables and fruit is 400 grams/person per day (11).

Children more often consume snacks at school because parents do not prepare food or school supplies. The types of food that children usually buy at school are snacks, fried foods and drinks with flavorings (8,12,13).

The program is a step to increase children's interest in consuming vegetables and fruit through a campaign through health education with a joint eating program at school which is a form of application of the Germas which is scheduled every Thursday and Friday for activities such as healthy gymnastics as part of extracurricular activities such as scouts, volleyball, badminton and football (14).

Modeling behavior is the behavior of imitating someone else who is considered a role model who has a great influence in forming a person's character and behavior (15). According to research results from Haryati (2017), children prefer to imitate adult models compared to child models, adopting smarter models compared to less smart models. (16).

The results of a preliminary study conducted at SDN 020 Samarinda in December 2023 from 10 students, 8 of whom bought snacks sold in the school environment, such as meatballs, cilok or other snacks sold by street vendors around the school environment. Furthermore, during the interview, 7 students said they rarely had breakfast and only brought pocket money to school to buy food when they arrived at school. From this phenomenon, researchers are interested in conducting further analysis related to the influence of live and modeling on healthy snacks and vegetable and fruit consumption at SDN 020 Samarinda

2. Materials and Methods

This study will see whether there is an effect of live modeling on changes in snacking behavior and fruit and vegetable consumption. The study population was 57 students at SDN 020 Samarinda. The sampling technique was purposive sampling where the researcher used a dropout criterion of 10% so that a sample of 22 respondents was obtained. The inclusion criteria were elementary school students in grades 4, 5 and 6 who were willing to be respondents, parents of elementary school students who could use the zoom or google meet application. The exclusion criteria for respondents at the time of the study were absent due to permission or illness and if the parents of the respondents did not fill out the observation sheet for more than 4 days in 2 weeks, the respondents were removed from the sample group. Observation sheet B, namely an observation sheet on vegetable and fruit consumption behavior with a food recall checklist (17). The validity test of the live modeling implementation procedure showed a moderate correlation ($r = 0.37–0.43$). The results of the reliability test through Cronbach's α were quite high >0.70 (18). Meanwhile, vegetable and fruit consumption behavior was measured using food recall adopted from the Yusni and Bachtiar (2021) research questionnaire. With a person test, a correlation value of (0.721-0.921) and a reliability value of 0.89 were obtained (13). Observation sheet C is a checklist containing 16 items of healthy snack consumption behavior using a cut off

point. The results of the statistical test using the Wilcoxon test.

3. Results and Discussion

Table 1 Description of Healthy Snacking Behavior and Fruit and Vegetable Consumption before and after Intervention

Healthy Snacking Behavior	Before the intervention		After the intervention	
	f	%	f	%
Bad behavior	16	72.72	4	18.2
Good behavior	8	36.37	20	91.8
Total	22	100.0	22	100
Vegetable and fruit consumption behavior	f	%		
Bad behavior	18	81.8	6	27.27
Good behavior	4	18.2	16	72.73
Total	22	100.0	22	100

Source: Primary Data of Research Questionnaire on Students at SDN 020 Samarinda, 2023

Table 2 Differences in Average Behavior of Healthy Snacks and Fruit and Vegetable Consumption Before and After Intervention

[ealthy Snacking Behavior Sehat	*Live Modelling*	Median ±SD	*P-value*
Skor	Pre	11.7± 2.191	0.003
	Post	14.7± 0.539	
/egetable and fruit consumption behavior	*Live Modelling*	Median ±SD	*P-value*
Skor	Pre	11.2± 0.35	0.009
	Post	[5.11± 0.683	

Source: Primary Data of Research Questionnaire on Students at SDN 020 Samarinda, 2023

Live modeling is one of the key techniques in the Social Cognitive Theory (SCT) approach developed by Albert Bandura. In this theory, human behavior is influenced by the reciprocal interaction between personal factors (such as cognition and self-confidence), behavior, and the environment (19). One of the main concepts of SCT is observational learning, where individuals learn new behaviors by observing others, also known as modeling (20). When someone directly observes a real model (for example, a teacher, parent, or peer) performing certain behaviors such as consistently consuming fruits and vegetables (13). Furthermore, the individual can imitate this behavior, especially if the model has a respected social status or gets positive consequences such as praise or pleasure (21).

In the context of promoting healthy behaviors such as fruit and vegetable consumption, modeling carried out directly by real models such as teachers, parents, or peers can encourage individuals, especially children and adolescents, to imitate these behaviors (22). Research shows that the presence of respected models who are seen enjoying healthy food consumption can increase interest in and acceptance of fruits and vegetables. Recent studies support the effectiveness of this approach, such as research by Davison et al. (2020) which showed that parental involvement as healthy eating models has a positive impact on children's eating habits (23); Zarnowiecki et al. (2020) found that teachers who eat fruit in front of students can increase students' fruit consumption (24); and research by Scherr et al. (2021) which highlights the importance of peers as agents of change in healthy eating behavior among adolescents (25). These three studies confirm that observational learning through live modeling is an effective strategy in interventions

to increase fruit and vegetable consumption.

Live modeling interventions are very suitable to be implemented in Indonesian society, especially because of the collective cultural character and orientation towards social hierarchy, such as obedience to parents and authoritative figures (26). Indonesian culture, which is thick with eastern values, such as obedience, respect for parents, and the habit of imitating behavior that is considered good (27–29), strongly supports the effectiveness of live modeling in changing behavior, including healthy eating behavior such as consuming fruits and vegetables.

In this context, parents, teachers, religious leaders, and community leaders can be strong models (27,28). When they actually and consistently demonstrate healthy behavior, such as eating fruits and vegetables, children or younger members of society tend to imitate without having to be given direct instructions, because there is an element of a respected role model. This imitation process is reinforced by social norms and cultural expectations, which uphold the values of "obeying elders" and "being ashamed of being different from the group" (30).

Healthy food programs are part of the policies implemented in educational institutions (31). Supported by research, a combination of counseling and practice is able to improve teachers' knowledge and practical skills in providing interactive material on vegetable and fruit consumption (32).

The live modeling intervention given to school-age children in this study showed that the involvement of the roles of parents and teachers (33). Implementation of vegetable and fruit consumption behavior, new procedures or habits in groups of school-age children who receive behavioral modification. Thus, the hypothesis states that there is an influence of live modeling intervention on vegetable and fruit consumption behavior of school-age children.

The researcher's assumption is related to the results of the study where parents as live modeling are important in supporting children's behavior in choosing healthy snacks. The role of parents as live modeling in the family environment is important. Mothers are important indicators of children's success in adopting a healthy lifestyle by providing support to the family. Furthermore, the role of teachers when children are at school is also important because children's activities are mostly carried out at school. Policies related to the types of food sold at school are important, monitoring the cleanliness and types of food sold at school is the responsibility of the school in supporting the healthy food consumption program.

4. Conclusion

Limitations of this study include not controlling for other factors that influence eating behavior, such as individual tastes, family economic factors, or access to fruits and vegetables, which may influence the results but were not strictly controlled for in the study design.. The results of statistical test analysis with the Wilcoxon test obtained a p value of $0.009 \leq 0.05$. This means that ha is accepted that there is a significant influence of live modeling before and after being given a live modeling

intervention where the p value <α = 0.05. Statistical test analysis with the Wilcoxon test obtained a p value of 0.003 ≤ 0.05. This means that Ha is accepted that there is a significant influence of live modeling before and after being given a live modeling intervention where the p-value <α = 0.05. The results of this study can contribute to increasing the role of parents as models in implementing healthy behavior in children by supporting the provision of healthy foods including vegetables and fruits. In addition, schools also have a contribution in supporting the behavior of consuming vegetables and fruits by providing healthy eating instructions and rules for food sellers at school.

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Conflict of Interest
All Authors declare no conflict of interest and agree with the content of the manuscript.

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