

Educational Game Guess the Picture of Balanced Nutrition in Groups of Elementary School Children: Health Education

Fransiska Novita Sari¹, Maria Floriana Ping², Muh. Taufiqurrahman³

^{1,2}Nursing Department, STIKES Dirgahayu Samarinda, Samarinda, Indonesia

³Pharmacy Department, STIKES Dirgahayu Samarinda, Samarinda, Indonesia

Author Email: fransiskans.93@gmail.com¹, pingmariafloriana@gmail.com²,
muh.taufiqurrahman@gmail.com³

Orcid: <https://orcid.org/0000-0002-1917-9894>¹, <https://orcid.org/0000-0002-2893-7212>²,
<https://orcid.org/0009-0007-2192-1158>³

Abstract. The group of elementary school age children is a stage of life where children experience rapid growth and development. Imbalance between nutritional intake and daily needs can cause nutritional health problems. This community service activity was carried out as an effort to promote health in groups of elementary school age children. Balanced nutrition education using picture guessing game media. Participants in this community service were 70 students from grades 1-6 in one of the elementary schools in Sungai Bawang Village, Kutai Kartanegara Regency. The final results of this activity show an increase in the mean value of knowledge from 5.96 to 6.23 and the p value (0.000). Health education using games can increase children's interest in learning about efforts to maintain health.

Keywords Balanced Nutrition, Elementary School Children, Guess the picture

1 Introduction

The categories for groups of school-age children based on age are early childhood aged 6-7 years or <8 years, middle childhood aged 8-9 years, and late childhood aged 10-12 years [1]. The Comer process promotes growth along all of the six pathways critical to children's learning and development, namely physical, cognitive, psychological, language, social, and ethical. Physical development consists of the needs for physical health, nutrition, energy, physical rest, and alertness. One part of physical development is the fulfillment of nutrition which contributes greatly to the process of growth and development of children.

School-age children are included in the stage of rapid growth and development due to changes in themselves both mentally and physically. Good nutrition is very important at this stage of life to support normal and healthy growth processes [2]. Fulfillment of nutrition through unhealthy eating patterns since school-age children can become a habit that is carried on into adulthood. This condition can be a risk factor for various non-communicable disease health problems, one of which is obesity [3]. Based on this, it is necessary to make efforts to change the diet to be healthy and balanced.

The stage of growth and development of school-age children is fast and active, so it needs to be supported by a balanced nutritional intake. Nutrition is a basic pillar that covers life, health and human development throughout the life cycle [4]. Fulfillment of proper nutrition is very important for survival, physical growth, mental development, performance, productivity, health and well-being [5]. Unbalanced nutritional fulfillment behavior, irregular eating patterns and unsupportive environmental influences can cause health problems in children [6]. This shows that malnutrition, excess nutrition and obesity are very risky to reduce the quality of life of children.

The 2019 United Nations Children's Fund (UNICEF) explained that in 2018 Indonesia experienced a 'double burden', namely two problems at once, namely malnutrition and excess nutrition. The results of the 2018 Riskesdas [7]. show the same thing regarding data on school-age children 5-12 years in Indonesia with a very thin nutritional status of 2.4%; thin 6.8%; fat 10.8%; and obesity as much as 9.2%; Data for East Kalimantan Province is included in the top 10 national nutritional status of obese children 12.6% and 11.4% obese. The percentage of excess nutrition and obesity in East Kalimantan is higher than the national percentage. This needs to be a concern to minimize the increase in cases of obesity in the school-age group of children.

Health promotion efforts regarding balanced nutrition have been carried out in various settings such as the area of the family, school, and groups in the community. Government policies supporting physical exercise behavior and fulfilling balanced nutrition through the Clean and Healthy Behavior (PHBS) program under the Directorate of Health Promotion and Community Empowerment of the Indonesian Ministry of Health [8] have also been implemented. Programs at the puskesmas related to school-age children's health have also been implemented through the UKS Program. Rahmy et al., 2020 also made a similar effort, namely providing balanced nutrition education to elementary school students to increase students' knowledge [9]. Various attempts have been made but nutritional problems in children still occur.

Educational games in previous studies were used as media in health promotion regarding balanced nutrition in school-age children. Hermans et al., 2018 using the Feed The Allien game! in the school age group. The game uses video games as the medium. The results of this study indicate an increase in children's nutritional knowledge in a short period of time [10]. Froome et al., 2020 by implementing the serious mobile game application The Foodbot Factory. The results of this study indicate an increase in the nutritional knowledge of school-age children [11]. Some of these studies are internet-based in the form of applications. Internet use has not been evenly accessed by all children and there are still children who do not have personal gadgets. Based on this, the authors are interested in doing community service for groups of school-age children as a form of action to promote nutrition problems.

2 Methods

The methods used in this service include:

- a. Stage 1: pre-implementation
 The community service implementation team approached and collaborated with one of the public elementary schools accompanied by an auxiliary health center.
- b. Stage 2: Implementation
 This health promotion community service is carried out using lecture, discussion, question and answer methods and guessing games. The activity was attended by 70 students from grades one to six.
 1. Opening
 Respondents were asked to fill out a questionnaire (pre-test) regarding knowledge of balanced nutrition. This study used a questionnaire regarding balanced nutrition consisting of 10 statement items. The answer choices consist of a correct answer (score 1) and an incorrect answer (score 0). The results of knowledge measurement are divided into two, namely poor knowledge (score <5) and good knowledge (>5). After finishing pre
 2. Lectures, discussions, questions and answers and guessing games
 Presentation of balanced nutrition material using flipcharts and followed by a question and answer session. After that, a picture guessing game was carried out regarding balanced nutrition. Respondents were divided into several groups. All participants were active and cooperative during the activity.
 3. Closing
 The final evaluation was carried out using the same questionnaire (post-test) at the beginning of the implementation of activities related to knowledge of balanced nutrition. Respondents' answers in the pretest and posttest were then checked for the completeness of the answers that had been written. After complete answers, the data is processed using the SPSS data processing application. The analysis used is univariate and bivariate. The chi square test is used to determine differences in knowledge before and after the community service

3 Result and Discussion

The results of community service that has been carried out on groups of elementary school age children are all participants participating from the beginning and the end. There is good cooperation between the school, students and the community service team.

Table 1. Knowledge Levels of Students Based on Pre-Test and Post-Test Scores of Groups of Elementary School Age Children in Sungai Bawang Village, Kutai Kartanegara in 2023 (n=70)

Knowledge	Pretest		Posttest	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good knowledge	53	75,71	59	84,28
Less knowledge	17	24,29	11	15,72

Table 2. Analysis of differences in children's knowledge before and after health education in Sungai Bawang Village, Kutai Kartanegara in 2023 (n=70)

Variable	Mean	SD	Std. Error	P value
Knowledge				0,000
Before education	5,96	1,95	0,23	
After education	6,23	1,67	0,20	

Table 1 shows that there was an increase in the average knowledge about balanced nutrition before (5.96) and after (6.23) health promotion was carried out with a mean difference of 0.27. The results of the statistical analysis of the Paired t-test values found that p value = 0.000 ($p < 0.05$) indicating that there was a significant difference in the respondents' knowledge before and after health promotion was carried out. Children's knowledge of balanced nutrition has increased after health promotion. Measurement of children's knowledge using a questionnaire consisting of 10 statements regarding the type of food to meet balanced nutritional needs.

Sari et al., 2022 in community service activities for groups of elementary school students regarding balanced nutrition and physical exercise. The results of these activities indicate an increase in knowledge after the activity is carried out. Respondents were enthusiastic in participating in the activity because of the guessing game in groups [12]. Rizqi et al., 2020 did the same thing using guessing media on images of healthy snacks for elementary school students. The results of these activities show an increase in the knowledge score after the activity is carried out [13]. his picture guessing media can be applied as a new media in the learning process which not only provides information but also entertainment to students.

The same opinion was conveyed by Nurhayati et al., 2023 in community service conducted for school-age children to choose a balanced nutritional food menu. The results of these activities indicate an increase in children's knowledge about balanced nutrition [14]. Based on the results of several previous activities, the picture guessing game can be used as a health promotion for balanced nutrition in elementary school students. This is supported by Sari (2022) that guessing pictures can motivate students to find out about the pictures given [15]. This effort indirectly increases children's ability to practice thinking in finding solutions to a problem. Based on this, it can be concluded that balanced nutrition games can increase children's curiosity about new things. The use of creative game media can create a fun learning atmosphere.



Figure 1. Lectures and Discussions



Figure 2. The Picture Guessing Educational Game Used



Figure 3. Picture Guessing Games

4 Conclusion

Based on the results of the community service activities, it was found that health education through a picture guessing game could increase the knowledge of balanced nutrition in school-age children. Health promotion using game media can increase children's interest in learning. Suggestions for further activities are community service with the target of school-age children being able to use local traditional games.

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