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## The Effect of Educational Socialization Using Poster Media on Understanding the Proportion of Calories for Children

Shinta Zahra Zahriyatul Khamsah<sup>1,\*</sup>, Asep Bayu Dani Nandiyanto<sup>2</sup>

<sup>1</sup> *Departemen Pendidikan Ilmu Komputer, Universitas Pendidikan Indonesia, Indonesia*

<sup>2</sup> *Departemen Kimia, Universitas Pendidikan Indonesia, Indonesia*

Correspondence: E-mail: [shintazhr@upi.edu](mailto:shintazhr@upi.edu)

### ABSTRACTS

The purpose of this study was to provide an understanding to the community in Parongpong, Indonesia, about the importance of calorie intake in children's bodies. nutrition remains balanced. The research subjects took a sample of 15 people from Cigugur Girang consisting of 2 men and 13 women. The method used is to do a pre-test and post-test using google form on the people of Cigugur Girang. The results of this study obtained an average N-Gain score of 73% and an increase in score of 38% with a minimum pre-test score of 180 and a maximum of 200, while a post-test score of at least 60 and a maximum of 150. The use of poster media is quite effective in educating the people of Cigugur Girang. These results were obtained because the community was not too familiar with calorie intake, although some already understood it, some others had a very small pre-test score with a score of only 60, after counseling with poster media, the Cigugur Girang community understood more about calorie intake marked with an increase in the value of pre-test to post-test by 38%. The people of Cigugur Girang can understand the importance of calorie intake for children to avoid calorie deficiency or excess disease.

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## 1. INTRODUCTION

Calories are the amount of energy obtained from food and drinks that contain nutrients, such as carbohydrates, proteins, and fats the body needs to function properly (Fitriyanti, 2013). Because excess calories can lead to obesity, high blood pressure, and even heart disease. Likewise, a lack of calories is not good for health because it can cause fatigue, susceptibility to disease, malnutrition, hair loss, and stunted growth and development (Asih & Widyastiti, 2016). In fulfilling calories for the body, the calorie needs of each child are also different due to various factors that influence it such as gender, age, weight, and daily activities (Rahmi, 2019). There are many ways to measure calorie needs for each person, but in general, to meet 30% of daily calories, children aged 8 years with a body weight  $\leq$  28 kg require a calorie intake of  $<$  384 kcal, while children aged  $>$  8 years with body weight 43 kg and children aged 8 years with body weight  $>$  28 kg require a calorie intake of 384 - 474 kcal (Supangat, 2018).

Mother's knowledge greatly affects the nutritional status of toddlers who are one of the groups are vulnerable to nutrition and the knowledge of housewives is strongly influenced by the social conditions of the community from the family itself. One of the effects of excess calories is obesity. Obesity can lead to degenerative diseases such as hypertension, coronary heart disease, stroke, cancer, type II diabetes, and bone disorders. The existence of degenerative diseases that occur in obese patients can have a high enough impact on the morbidity and mortality rates of obese people on health costs. Many mothers in Indonesia consider obesity in toddlers normal because they assume it when they grow up. They thin by themselves, mothers feed their children a lot because they can't bear it. Many mothers think meatballs, dumplings, and various noodles are not fast food (Leonita & Nopriadi, 2010). However, many mothers realize the importance of serving food to their children by making their food at home instead of buying fast food (Musa *et al.*, 2021). The risk factors that influence obesity in children aged 5-15 years are the level of education of children after being controlled by gender variables, history of father obesity, exercise habits, and calorie intake (Sartika, 2011). While the impact of calorie deficiency is malnutrition, stunted growth, stunting, and others. One of the preventions of stunting is to treat pregnant women with a lack of caloric energy (Probowati *et al.*, 2021). Therefore, children's calorie needs are fulfilled and balanced, mothers must understand and know the importance of caloric needs for children.

Previously, there were many studies on calories and their effect on health, including parental education affecting protein nutritional status and energy nutritional status, parental income affecting protein nutritional status and energy nutritional status, parental nutritional knowledge affecting protein nutritional status and nutritional status energy (Retnaningsih & Putra, 2011). There is a relationship between breakfast habits and calorie intake with body fat percentage (Arraniri *et al.*, 2017). Counseling on the importance of vegetables to children in Kindergarten Aisyiyah Kwandungan, Trowongan, Malangjiwan, Colomadu, Karanganyar, Central Java (Ichsan *et al.*, 2015). Swaninda and Metty (2021) conducted a study using the total sugar content of low-calorie tilapia dark chocolate as an alternative low-calorie snack for obese adolescents. The incidence of obesity in school children aged 5-18 years is related to the consumption of fat and calories. The largest group of energy and dietary fiber contributors is the cereal group. The largest group from fatty food group is the fat and processed group (Permanasari & Aditianti, 2018). Designing an application can determine the composition of the diet menu according to the number of calories needed with 100% accuracy (Suryani &

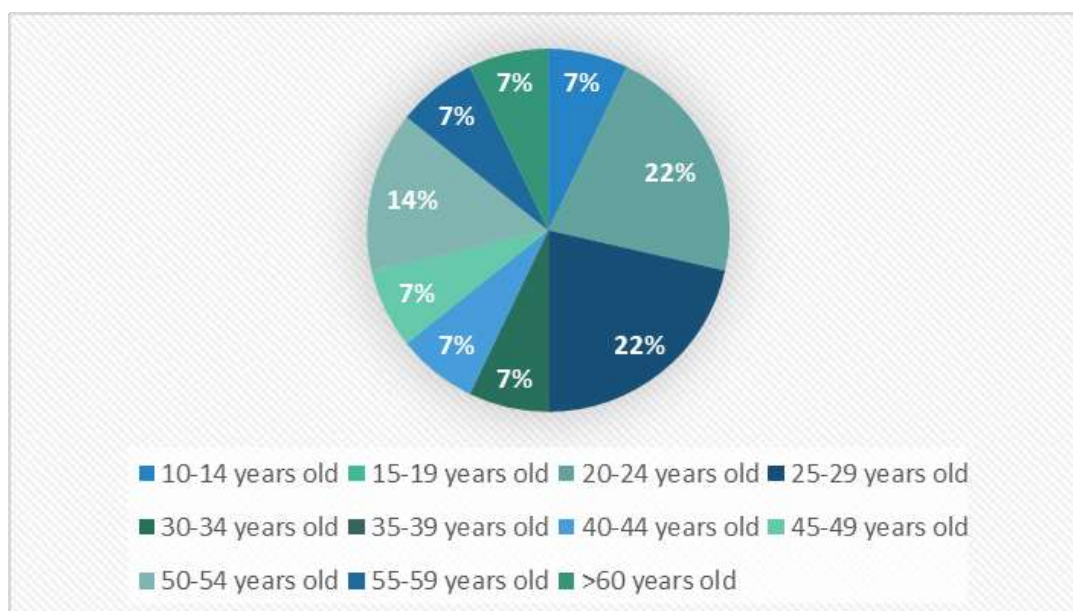
Ardian, 2020). Calorie intake in the deficit category affects the duration of perineal wound healing in pregnant women (Rosalina & Istiqomah, 2018).

Based on these studies, calorie intake greatly affects health, in wounds, diabetic patients, and especially in children's growth. Parents' education and understanding greatly affect their child's calorie intake. Therefore, parents must understand the importance of calorie intake. However, from the research above, no research has been found regarding the Based on these studies, calorie intake greatly affects health, in wounds, in diabetic patients, especially in children's growth. Parents' education and understanding greatly affect their child's calorie intake. Therefore, parents must understand the importance of calorie intake. Besides that, from the research above also no research has been found regarding the importance of understanding calorie intake for children, parents can provide balanced calorie intake. Therefore, the purpose of this study is for parents to understand the importance of calorie intake for children, making nutrition remain balanced. The novelty of this research is (i) educating the residents of Cigugur Girang village about the importance of calorie intake for the body, (ii) the process of educating residents using poster paper media, and (iii) the research focuses on public understanding of calorie intake for children.

## 2. METHODS

### 2.1. Research Subject

The research subjects were residents of Cigugur Girang, Parongpong, Indonesia. Respondents in this study took a sample of 15 people, consisting of 2 men and 13 women. **Figure 1** shows the age of the respondents. The average respondent's occupation is 5 housewives, 4 students, 3 teachers, 1 employee, 1 entrepreneur, and 1 student. **Figure 1** there is data on the age of respondents with the majority aged 20-24 years and aged 25-29 years with a percentage of 22% each, then aged 50-54 years with a percentage of 14%, and the rest are evenly distributed in various age groups.



**Figure 1.** Percentage of respondent's age.

## 2.2 Research Design Analysis

Design The research conducted is one group pre-test and post-test. The research activity was carried out in Cigugur Girang, Parongpong, Indonesia. The research method used was a quantitative approach. Meanwhile, for data collection using a questionnaire was given via google form. The study was divided into 3 stages, namely the first stage for filling out the pre-test, the second stage was education using poster media regarding calorie intake for children, and the third stage was filling out the post-test. **Table 1** shows the pre-test and post-test questions. This type of question uses the true-false method.

**Table 1.** Question instrument.

No.	Question	Answer	
		True	False
1.	A calorie is a unit of heat or energy content or the amount of energy obtained from food and drink. energy the body needs to function and function properly.		
2.	calories are part of carbohydrates		
3.	calories are commonly known as "fat"		
4.	Adequate calorie needs are important because they can affect a child's weight		
5.	If the caloric needs are not met, the child will be lethargic, cranky, and unmotivated		
6.	calorie needs are not affected by daily activities		
7.	the average 9–13-year-old boy needs about 1400-1600 per day		
8.	calorie needs affect the growth of children		
9.	lack of carbohydrates does not affect caloric intake		
10.	Calorie needs can be calculated based on weight and age		
11.	Tofu contains 200 kcal calories		
12.	Children aged 2-3 years need about 1000-1400 calories per day		
13.	White rice contains 242 kcal calories		
14.	The caloric needs of babies older than 6 months are sufficient to meet only with breast milk		
15.	Tempe contains 193 kcal per 100 grams		
16.	ten kilocalories (10 kcal) equals 1000 small calories (1,000 Cal)		
17.	Calories in breast milk (average): 67 kcal per dL		
18.	Breast milk can only provide about 400 kcal per day		
19.	Children who are deficient in calories will be susceptible to disease		
20.	In 100g of salmon, there are 208 kcal		

After all the data is collected, the data is processed by calculating the N-gain score to see the comparison of pre-test and post-test using Eq. (1):

$$g = \frac{S_{Post} - S_{Pre}}{S_{Max} - S_{Pre}} \tag{1}$$

where *g* is the N-Gain score, *S<sub>Post</sub>* is the post-test score, *S<sub>Pre</sub>* is the pre-test score, and *S<sub>Max</sub>* is the ideal Score/max Score. The N-Gain Score assessment category can be seen in **Table 2**.

**Table 2.** Rating category N-Gain score.

N-Gain Score	Category
$g > 0.70$	High
$0.30 \leq g \leq 0.70$	Medium
$g < 0.30$	Low

### 3. RESULTS AND DISCUSSION

N-Gain analysis test was carried out to see the comparison between the scores. **Table 3** shows the results of the gain value analysis. **Table 4** there is data on the percentage of N-Gain scores, as many as 60% have gain values in the high category, 33.30% in the medium category, and 6.70% in the low category. The results obtained with an average N-Gain score of 73% with a high category and a percentage of  $56 \leq g \leq 75$ , these results indicate the use of poster media is effective enough to make Cigugur Village residents happy to understand the importance of calorie intake for children (Anggraheni & Saifuddin, 2021). As research conducted by Farell *et al.* (2021) and John *et al.* (2021) the N-Gain score is in the range of 56-73, and the effectiveness of N-Gain is categorized as quite effective.

**Table 3.** The results of the analysis of the pre-test and post-test N-Gain scores.

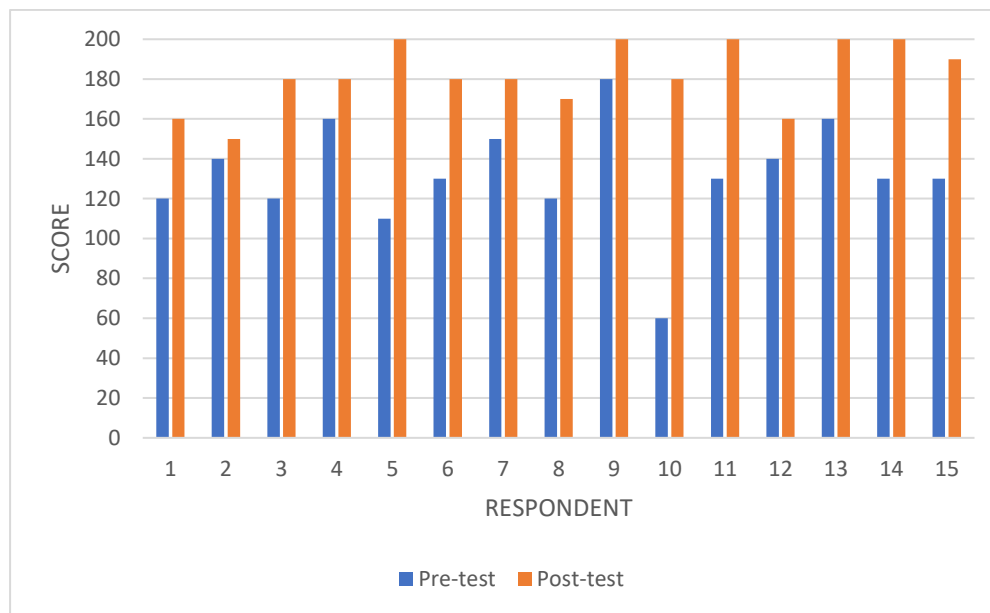
No.	Name	score		N-Gain	Category
		Pre-test	Post-test		
1	VN	120	160	0.50	Medium
2	NF	140	150	0.17	Low
3	NU	120	180	0.75	High
4	SI	160	180	0.50	Medium
5	RH	110	200	1.00	High
6	HR	130	180	0.71	High
7	MA	150	180	0.60	Medium
8	BU	120	170	0.63	Medium
9	RA	180	200	1.00	High
10	DF	60	180	0.86	High
11	AM	130	200	1.00	High
12	DN	140	160	0.33	Medium
13	TS	160	200	1.00	High
14	SA	130	200	1.00	High
15	KA	130	190	0.86	High
<b>Average</b>		<b>132</b>	<b>182</b>	<b>0.73</b>	<b>High</b>
<b>Max</b>		<b>180</b>	<b>200</b>	<b>1.00</b>	
<b>Min</b>		<b>60</b>	<b>150</b>	<b>0.16</b>	

**Table 4.** Percentage N-Gain score.

Criteria	Gain Index	Frequency	Percentage (%)	Normalized average gain
High	$g > 0.70$	9	60%	0.73
Medium	$0.30 \leq g \leq 0.70$	5	33.30%	
Low	$g < 0.30$	1	6.70%	
<b>total</b>		<b>15</b>	<b>100%</b>	

**Figure 2** shows a comparison of pre-test and post-test scores. Respondent 2 had the least amount of improvement with pre-test points of 140 and increased by 10 to 150 in post-test. While respondent 10 is the most obvious difference in pre-test and post-test scores because the scores increased by 120. The average increase in the pre-test to post-test was 38% from the initial average of 132 to 182 after the community was given education through poster media (see **Table 3**). According to the results obtained from the comparison of the pre-test and post-test above, there is an increase in understanding of calorie intake for children (Putri

& Riski, 2020). The results also show posters are effectively used as learning media (Khastini et al., 2021).



**Figure 2.** Categorization of pre-test and post-test scores.

#### 4. CONCLUSION

This study aims to make the people of Cigugur Girang, Parongpong, Indonesia understand the importance of calorie intake for children, there are 3 stages of research, namely (i) filling out pre-test questions, (ii) education about the importance of calorie intake for children using poster media, and (iii) filling out post-test. Then from the pre-test and post-test, N-Gain results were obtained with an average of 73%. The question score increased by 38% from the initial average of 132 to 182. This means the poster media is quite effective in educating the understanding of the residents of Cigugur Girang about the importance of calorie intake for children.

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#### 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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