

# Nutrition Education with Counseling and Pocket Book Media to Increase Knowledge of Vegetables and Fruit Consumption in Student of SMPN 2 Pangkalpinang City

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**Abstract**—Consumption of vegetables and fruit of the Indonesian people on average is still very less, which is 63.3% vegetables and 62.1% fruit of the recommended consumption (Riskesdas, 2013). Especially at the age of  $\geq 10$  years. Based on the results of Riskesdas in 2013 and 2018, the national average consumption of vegetables and fruits was 93.5% and 95.5% respectively. Nutrition education is a part of communication, information and nutrition education which aims to provide information related to nutrition to increase the knowledge of vegetables and fruit consumption. The purpose of the study was to measure the level of student knowledge through nutrition education with counseling and a pocketbook media about vegetables and fruit in SMPN 2 Pangkalpinang City. This type of research is a quasi-experiment with one group pretest-posttest design. The sample was students of SMPN 2 Pangkalpinang City aged 13-15 years, totaling 75 people, using random sampling techniques. The sample was divided into two treatment groups, namely group I (P1) who were given counseling and group II (P2) were given counseling and pocketbooks. Then the students' knowledge was measured through pretest and post-test. Data were analyzed using an independent T-test. The results showed there was an influence on the average increase in respondents' knowledge before and after being given nutrition education in the form of counseling only (P1) and the form of counseling and giving a pocketbook (P2) about consumption of vegetables and fruit (p-value = 0.04 for P1 and p-value = 0.000 for P2). The score of increasing respondents' knowledge was greater at P2 (30.52) than P1 (24.38).

**Keywords:** *Nutrition education, consumption of vegetables and fruit.*

## I. INTRODUCTION

Food is a vital need for everyone. Food quality and quantity need to be maintained, so food consumed must be nutritious, which contains essential nutrients for life and health and consumed in sufficient quantities [1]. One's eating habits and behavior are strongly influenced by eating habits family and the influence of the surrounding environment, such as friends, advertisements in the mass media and the availability of a variety of foods with unbalanced nutritional content can trigger changes in eating habits that are not good lifestyle changes [2].

The average consumption of vegetables and fruits in Indonesian society is still very lacking, namely 63.3% vegetables and 62.1% fruits of the recommended consumption [3]. Especially consumption of vegetables and fruits is very less at the age of 10 years, the results of [3],[4] respectively, the national average consumption of vegetables and fruits was 93.5% and 95.5%, an increase of 2%. When viewed from these data there are still many people who have not consumed vegetables and fruits, in the case of known vegetables and fruits have very good health benefits. States that the fiber content in vegetables and fruits has the benefits of controlling body weight, preventing colon cancer, preventing gastrointestinal disorders, reducing cardiovascular disease and cholesterol [5].

Health education is an effort to tackle health problems, to change people's behavior towards better through education in the form of information or messages

conveyed through certain media that will change a person's attitude and behavior [6]. According to Mubarak, W.I, et al [7] .ways to change behavior are motivation, starting from the family environment and providing counseling, which is adjusted to the level of education and socio-cultural norms adopted. Research conducted by Sharp, G. et al in Western Australia related to student motivation to increase vegetable and fruit intake, the results obtained from teacher support for school- based nutrition programs and potential obstacles can be overcome through strategies that involve people old and children [8].

Silalahi Research, V., et al, shows that there is an increase in knowledge about the consumption of vegetables and fruit in teachers and students of Mejosari Elementary School in Malang after being given nutrition education [9]. According to Notoatmojo, Sknowledge is the result of tofu, is a cognitive domain that will form a very important domain in shaping one's actions [10].

The media is a channel or intermediary in delivering messages, so that it can be received by the recipient of the message. Several studies related to nutrition education efforts to increase consumption of vegetables and fruits using media such as research conducted by Desi et [11] using the snake ladder game media, Anggraini, E.dkk [12] using animation media and Desi et al [13] through puppet games, all three of these studies have shown significant results in the consumption of vegetables and fruit in children.

**II. METHOD**

*A.Design, place and time*

This type of research is a quassy experimental design with one group pretest-posttest design. The research location is SMPN 2 Pangkalpinang City. Data collection has been carried out in August - November 2019.

*B. Study participants*

*1. Population*

All state junior high school students aged 13-15 years Pangkalpinang City The results of the collection of basic data obtained a population of 415 people from 750 students.

*2. Samples*

Large sample taken using Slovin formula  $n = \frac{N}{N}$

$$= \frac{1 + N D^2}{415}$$

$$= \frac{1 + 415 \times (0,1)^2}{80}$$

n = Number of samples N = Total Population D = desired degree of precision (10%)

*C. Ethical clearance*

Data was collected after obtaining approval from the Health Research Ethics Commission (KEPK) of the Poltekkes Kemenkes Pangkalpinang under number 10 / EC / KEPK-PKP / V / 2019. Previously, each subject was informed independently of research procedures, informed consent and signed an approval form.

**III. RESULTS**

*A. Characteristics of respondents*

Characteristics of respondents consisted of gender, age, an average value of knowledge in each treatment group. The treatment given in this research is nutrition education about the consumption of vegetables and fruit through counseling media and pocketbooks. The first group was given counseling (P1), while the second group was given counseling and pocketbooks (P2).

The characteristics of respondents by gender can be seen in Table 1.

**Table 1. Distribution of respondents by gender**

Gender	P1		P2	
	n	%	n	%
Male	24	60	18	51.4
Female	16	40	17	48.6
Total	40	100	35	100

Based on Table 1 it is known that the average gender of the respondents was male for both groups, namely P1 at 60% and P2 at 51.4%.

**Table 2. Distribution of respondents according to age**

Age (year)	n	Mean	SD	Min-Max
P1	40	13.03	0.16	13.0 – 14.0
P2	35	13.83	0.45	13.0–15.0

Table 2 shows the average age of the respondents in each treatment group was 13 years.

**Table 3. Distribution of knowledge value of the results of the pretest and post- test P1**

Knowledge Value	n	Mean	SD	Min - Max
Pretest	40	58.75	10.19	37.50 - 81.25
Post test	40	83.13	12.11	56.25 - 100

Table 3 shows that there was an increase in respondents' knowledge after being given nutrition education in the form of counseling about fruit and vegetable consumption (pretest score 58.75 and the post-test score is 83.13).

**Table 4. Distribution of knowledge value of the results of the pretest and post- test P2**

Knowledge value	n	Mean	SD	Min - Max
Pretest	35	57.86	9.39	37.50–75.00
Post test	35	88.38	9.84	68.75 - 100

Table 4 shows that there was an increase in respondents' knowledge after being given nutrition education in the form of counseling and pocketbooks on fruit and vegetable consumption (pretest score 57.86 and the post-test score is 88.38).

*B. Research analysis*

Research analysis was conducted to measure the effect of increasing respondents' knowledge through nutrition education in P1 and P2, as well as comparing treatments that were more significant in increasing knowledge in the two groups. The results of the statistical analysis can be seen in Table 5.

**Table 5. Statistical analysis of the respondents' knowledge value (P1)**

Knowledge Value	mean	Z hitung	p value
Pretest	58.75	-3.500	0.004
Post test	83.13		

Table 5 shows that there is a significant influence on the average increase in respondent's knowledge before and after nutrition education in the form of counseling about the consumption of vegetables and fruit (p-value = 0.004).

**Table 6. Statistical analysis of the respondents' knowledge value (P2)**

Knowledge value	mean	Z hitung	p value
Pretest	57.86	6.123	0.000
Post test	88.38		

Table 6 shows that there is a significant influence on the average increase in respondent's knowledge before and after nutrition education in the form of counseling and giving a pocketbook about the consumption of vegetables and fruit (p-value = 0.000).

The average increase in respondents' knowledge in each group can be seen in Table 7.

**Table 7. The average difference in the increase in respondents' knowledge in P1 and P2**

Treatment group	Average score of knowledge value	Average score difference in the valued of knowledge
	Pretest	Score <b>3.</b>
P 1	58,75	24,38 <b>m</b>
P2	57,86	30,52 <b>N</b>

Table 7 shows that the score of respondents' increased knowledge was greater at P2 (30.52) given nutrition education in the form of counseling and pocketbooks on vegetable and fruit consumption compared to P1 (24.38) who received nutrition education in the form of counseling only.

**IV. DISCUSSION**

*A. Characteristics of respondents*

According to Sarwono adolescence is a period of important periods in life social changes include increasing peer influence, more mature behavior formation of new social groups, the reaction of people around him will be a learning experience for adolescents to determine what actions he will do [14]. WHO defines adolescents as those who are in the transition phase between childhood and adulthood, and are divided into 3 groups: early adolescence, 12-15 years, middle adolescence, 15-18 years and late adolescence, 18-21 years [1]. Respondents in this study had an average age of each

treatment group ranging in age to 13 years, both P1 and P2 groups with an age range between 13 - 15 years, so it can be categorized as early teens. In terms of gender both groups P1 and P2 were dominated by men, namely the P1 group by 60% (n = 24) and P2 by 51.4% (n = 18) male respondents.

#### *B. Knowledge of respondents*

One factor that can enhance one's knowledge is exposure to information and media (Rahayu and Personal, 2012). According to [15] a person's knowledge about health can be influenced by age. The results of the analysis of respondents' knowledge in the two treatment groups before being given nutrition education (counseling or giving pocketbooks) were still lacking where the average score of pre-test <60, namely 58.75 group P1 and 57.86 group P2. The low level of respondents' knowledge about vegetable and fruit consumption is likely due to the lack of exposure to information about the importance of vegetable and fruit consumption. Knowledge is the result of knowing, which occurs after people have sensed a particular object. Knowledge is obtained from the eyes and ears. Knowledge is a guideline in shaping one's actions [15].

#### *C. Nutrition education using counseling media*

The results of the analysis of respondents' knowledge about the consumption of vegetables and fruit using extension media increased by 24.38 points and statistically there was a significant relationship (p = 0.004). Respondents who initially had less knowledge had good knowledge about the consumption of vegetables and fruit after counseling. This is because after being given nutrition education, respondents can better understand and comprehend the material so that the questions on the questionnaire can be answered correctly. A similar study was

conducted by Saragih regarding the effect of counseling on mothers' knowledge and attitudes about healthy and balanced food. The results of the study indicate that there is an effect of counseling on increasing maternal knowledge and changes in maternal attitudes about healthy.

#### *D. Nutrition education uses counseling and a pocket bookedia*

Nutrition education provided in the form of counseling and the provision of pocketbooks increased by 30.52 points and statistically there was a significant relationship (p = 0,000). The analysis showed that there were differences in adolescent knowledge about food safety before and after counseling with the pocketbook media. According to Solihin, adolescent knowledge can be obtained both internally and externally. Internal knowledge is the knowledge that

comes from itself based on life experience [17]. External knowledge is knowledge obtained from others. Knowledge gained both internally and externally will add to the knowledge of adolescents. According to Notoatmodjo, factors that influence the increase in knowledge after being given education include methods, materials, educators, media or assistive devices used in delivering messages. These factors must work together in harmony so that optimal results can be achieved. [15].

Analysis of the results of the study showed that after nutrition education was carried out in groups that only provided counseling and groups that provided counseling and pocketbooks, there was an increase in respondents' knowledge about the consumption of vegetables and fruit. Initially, the respondent had a lack of knowledge of good knowledge. Statistically showed a significant relationship  $p < 0.005$ , however, if seen from the point value of the group with the addition of a pocketbook has a value of more than 6.14 points on the knowledge score, an increase of about 11.26% However, statistically there was no difference between the two treatment groups (p = 0.308).

Nutrition education is given as an effort in increasing knowledge, making positive attitudes and changing behavior towards better. Several studies that are in line with this study include research conducted by Uzşen, H., and Başbakkal, Z. D shows that nutrition education provided to school-age children has a positive effect on knowledge, attitudes, nutritional behavior in the form of an increase in consumption of vegetables and fruit [18]. The research results of Hansen, A. R. et al. involving children aged 6-11 years known to have a relationship between nutrition education to increase the consumption of vegetables and fruit [19]. The results of the study Cannoosamy, K Nutrition education has a positive impact on promoting nutritional behavior [20].

## **V. CONCLUSION**

- A. There is a significant influence on the average increase in the respondent's knowledge before and after nutrition education in the form of counseling about the consumption of vegetables and fruits (p-value = 0.004).
- B. There is a significant influence on the average increase in respondent's knowledge before and after nutrition education in the form of counseling and giving a pocketbook about the consumption of vegetables and fruit (p-value = 0,000).
- C. The score for increasing respondents' knowledge was greater at P2 (30.52) given nutrition education in the form of counseling and pocketbooks on

vegetable and fruit consumption compared to P1 (24.38) who received nutrition education in the form of counseling only.

## VI. SUGGESTIONS

A cross-sectoral cooperation team was formed between the Health Office, the Education Office (UKS), and the Health Polytechnic Pangkalpinang in promoting and preventive efforts to motivate students to consume vegetables and fruit. Various programs that can be carried out include:

- A. Routine counseling about vegetables and fruit in schools at students and parents
- B. Provision of pocketbooks related to vegetables and fruit to students
- C. Various race activities.

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