

THE ROLE OF YOUTH NUTRITION CADRES IN THE SELECTION OF YOUTH SNACK FOODS IN SCHOOLS

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ABSTRACT

Consumption of snack foods that are generally preferred by teenagers is not yet encouraging. Poor consumption of nutrients will reduce nutritional status and reduce learning achievement. Lack of nutritional status and food consumption is closely related to nutrition knowledge and eating behavior of school-age children. To improve the behavior of snacks for school children, among others, the formation of nutrition cadres is carried out, by training several teenage students who excel and have leadership qualities. For this reason, this study examines the role of adolescent nutrition cadres in the selection of juvenile snacks at school. This type of research is quasi-experimental, with the treatment of research beginning with the formation of adolescent nutrition cadres through training. Furthermore, nutrition cadres provide counseling with nutritional play media with assistance to their peers once a week for one month. The population is all students of 16 Biringkanaya Middle School and Tello 23 Makassar Junior High School and the sample eighth class VIII students selected clustered in each of the 2 classes. Collecting knowledge and attitude data using a questionnaire that tested its validity. Data analysis with paired t test. The results of the study showed that the knowledge and attitudes of adolescent nutrition cadres were getting better after attending training and counseling practices. There is the influence of counseling by cadres on adolescent nutrition knowledge, but there is no effect of counseling on the attitude of adolescent nutrition cadres. It is recommended that teachers and homeroom teachers also conduct training to support the role of youth nutrition cadres in schools.

Keywords: Youth Nutrition Cadre, Selection of Snack Foods

INTRODUCTION

According to the 2010 population census, the age group of 10-19 years in Indonesia amounted to 43.5 million or around 18% of the population, a sizeable number. Adolescence is a time of rapid changes, so that nutrient intake can affect growth. Moreover, this period of increased physical activity, in addition to busy activities at school, generally began to also pursue various other activities, such as sports, courses and hobbies. All of that will drain energy, which leads to the need to adjust it with a balanced intake of nutrients (Notoatmodjo, 2012).

The results of existing studies, the nutritional intake of some teenagers is still lacking. Hatta's research (2014) on Makassar 35 Public Middle School students showed that 76.7% of students had less energy consumption and 63.3% of students who had less protein consumption. Consumption of snacks that are generally preferred by adolescents is also not fully encouraging. BPOM monitoring during 2011 showed that around 35.5% of snacks sold around schools were not safe and some of the school canteens were not yet healthy (Suratmono 2011). Rahmiyati's observation, 2017 at SMPN 35 Makassar found that 63% of students snacking habits were not good. Marda et al, 2014 found that snacks sold at SD Lariang Bangi Complex Makassar were not safe to consume because they contained total microbes that exceeded the threshold and some

contained staphylococcus.

Poor consumption of nutrients will reduce the nutritional status. Based on the 2013 Riskesdas data, it is known that the prevalence of short and very short adolescents is 35.1% while the prevalence of thin and very thin adolescents is 11.1%. In addition, some adolescents are overweight, with a prevalence of 8.3% and very fat at 2.5% (Balitbangkes 2013). Malnutrition in turn will interfere with children's health and learning ability. A study of school children in Morocco found chronically malnourished children to be shorter and to learn less preastically (Hioui, et al. 2011).

Lack of nutritional status and food consumption are closely related to nutrition knowledge and eating behavior of school-age children. Nurhikmah Research, 2017 at SMPN 35 Makassar with a sample of 38 second grade students found 63.2% and 76.3% of students lacked knowledge and nutritional attitudes. According to research conducted by Achmad, et al (2014) in Makassar, more than half of adolescent nutritional knowledge is lacking, namely 58.5% in SMAN 10 Makassar students and 53.1% in SMAN 16 Makassar students. Research Maulana, et al (2012), shows the level of knowledge of adolescents about nutrition 53.7% less while the results of Afdal (2011), about nutritional knowledge in students at SMPN 1 Sawahlunto 51.9% is still low.

Likewise, knowledge about balanced nutrition, Rahmiwati (2007) research results, 50% of adolescents have less knowledge. Furthermore Saputra's study, 2012 at SD Negeri 05 and 06 Petompon Semarang City gained students' knowledge about the physical quality of food which was only 41% good. Whereas the behavior of students' snacks was only 39% good. From the statistical tests found a relationship between the level of knowledge about the physical quality of food with the behavior of elementary school children's snacks.

To improve the behavior of school children's snacks for food, among others, the formation of nutrition cadres in schools. Nutrition cadres in schools are voluntary motivators who have gained knowledge and skills in nutrition improvement efforts. Nutrition cadres are expected to provide motivation and role models in efforts to improve nutrition, especially in the selection of healthy snacks. The importance of nutrition cadres in schools can be seen from the research results of Prasastia, et al (2014) in SDN 1 Bendung Mojokerto students, who state that education from peers plays an important role in the attitude of selecting healthy snacks for school children. Also Rahmiyati's research (2017) which educated students at SMPN 35 can increase nutrition knowledge about snacks from 58% less to 79% good (Rahmiyati, 2017).

The way to form a nutritional cadre at school is to train some students who excel and have leadership qualities. School nutrition cadres are expected to be able to motivate and set an example for their peers in the selection of snacks for school children. For this reason, this study examines the role of adolescent nutrition cadres in the selection of snacks for school children. The research problem formulation is the role of adolescent nutrition cadres in the selection of adolescent snacks at school?

The general objective of the study was to analyze the role of adolescent nutrition cadres in the selection of adolescent snacks at school. The specific objectives of the study are:

- a. Obtain information on knowledge and attitudes of adolescent nutrition cadres in the selection of snacks before and after training and implementation of counseling

- b. Obtain information on the influence of counseling by adolescent nutrition cadres on adolescent knowledge and attitudes in the selection of snacks

METHODS

This type of research is a quasi-experimental form of the role of adolescent nutrition cadres in the selection of adolescent snacks at school. Research design "Non Equivalent control group pretest-post test design" (Notoatmodjo, 2002). Experiments carried out in the form of training for adolescent nutrition cadres and counseling by cadres in the selection of adolescent snacks with assistance. The activity began with the formation of adolescent nutrition cadres through training. Furthermore, the nutrition cadres provide counseling using nutrition card games with accompaniment to their peers once a week in a month. The control group had no activities carried out. The control group is similar but not really the same.

In this research the research hypothesis is proposed:

- a. There is an influence of counseling by adolescent nutrition cadres on adolescent knowledge in the selection of snacks
- b. There is an influence of counseling by adolescent nutrition cadres on adolescent attitudes in the selection of snacks

The research location was at SMPN 23 Tallo Makassar which represented the urban center area and SMPN 16 Biringkanaya Makassar which represented the urban periphery viz. The population is all teenage students in the two schools and the sample is grade VIII students selected by cluster of 37 students 16 and 49 students of 23 junior high school. Youth nutrition cadres were selected as many as 24 people from the same two schools and the same class with healthy criteria, still actively studying, achieving and having been active in school or out of school organizations. However, until the research was completed, only 23 cadres were active in conducting counseling. Controls are teenagers in class VIII who are healthy and are still actively learning.

The research includes the preparation phase in the form of preparation of training materials, selection of cadre candidates, training of adolescent nutrition cadres, preparation of research

instruments, preparation of samples and pretests. The implementation phase of the research is counseling by adolescent nutrition cadres to other adolescents with assistance and finally posttest. The frequency of counseling once a week as much as 4 times with the topic of triguna food, balanced food, healthy snacks and nutritious local snacks. The research output is the formation of adolescent nutrition cadres and produced a collection of training materials for adolescent nutrition cadres and counseling for adolescents in the selection of snacks.

Data collection techniques on adolescent knowledge and attitudes were carried out by filling out questionnaires by teenagers, before and after treatment. The knowledge and attitude questionnaire used was tested for its validity. Data processing and analysis with the SPSS program and to know an increase in knowledge and attitude after treatment Wilcoxon test was performed. To find out the difference between increasing knowledge and attitude between treatments and controls, Mann Whitney's free test was performed.

RESULTS

School Overview

The location of the research activities was at SMPN 16 Sudiang Makassar and SMPN 23 Makassar. SMPN 16 is about 2 km from the Poltekkes Makassar Nutrition Department Campus. As of November 2018 the number of male students was 277 and 295 were divided into 3 x 6 study groups. Class VIII numbered 83 people consisting of 6

study groups. There are 45 teachers who have S1 and S2 degrees. In this school there is a UKS post, a canteen, a toilet, a mushallah and several hand washing places in front of the class.

The location of SMPN 23 is about 4 km from the Poltekkes Makassar Nutrition Department Campus. As of November 2018 the number of male students was 467 and 542 were divided into 3 x 8 study groups. Class VIII has 284 people consisting of 8 study groups. The number of teachers is 56 people with S1 and S2 degrees. In this school there is a UKS post, a canteen, a toilet, a mushallah and several hand washing places in front of the class.

Teenage Characteristics

Teenagers are a period of transition from childhood to adulthood. According to WHO (2014) this group is categorized in the age of 10-19 years. One of the groups included in the category of early adolescents is junior high school students. School activities that began to be congested and followed by increased physical activity demanded that junior high school students classified as adolescents should meet nutritional needs in order to support the activities and optimize their growth period.

In this study, the subjects included were grade VIII students from junior high schools located in the downtown area (SMPN 23) and the edge of the City (SMPN 16) Makassar. The characteristic results of these students are presented in Table 1.

Table 01
Characteristics of Youth Treatment and Control

	SMP 16(n=84)	SMP 23(n=97)
Treatment		
Body Weight (Kg) on average	57,4	39,0
Height (cm) average	152,3	138,5
Gender		
Male	18	19
Female	19	30
Control		
Body Weight (Kg) on average	44,7	42,0
Height (cm) average	150.2	155,4
Gender		
Male	25	10
Female	22	38

Table 1 shows that in the treatment students the average body weight of students in class VIII at SMPN 16 tended to be higher (57.4 kg) compared to students of class VIII at SMP 23 (39.0 kg). But students from SMPN 16 also have an average height that tends to be lower (150.2 cm) compared to students of class VIII at SMPN 23 (155.4 cm). According to AKG (2013) the median body weight value for children aged 13-15 years (junior high school students) is around 46 kg with a median height value ranging from 155-158 cm. However, the ideal nutritional

status can be determined based on a person's actual weight and height. There is also the sex of students from SMPN 16 that has a balanced ratio between male and female students, but at SMPN 23 female students are more dominant than male students.

Knowledge and Attitudes of Adolescent Nutrition Cadres

Knowledge and attitudes of adolescent cadres before and after treatment can be seen in the following.

Table 02
Distribution of Adolescent Cadres Knowledge Based on Schools

Knowledge	SMP 16(n=11)		SMP 23 (n=12)	
	N	%	N	%
Pre				
Good	6	54,5	7	58,3
Less	5	45,5	5	41,7
Post				
Good	10	90,9	11	91,7
Less	1	9,1	1	8,3

Good knowledge: score > 65

Table 2 shows that before treatment, good knowledge of adolescent nutrition cadres was 6 junior high school students 16 (54.5%) and 7 junior high school students

23 (58.3%), then increased to 10 junior high school students 16 (90.9%) and 11 Middle school students 23 (91.7%) after treatment.

Table 03
Distribution of Attitudes of Youth Nutrition Cadres by School

Attitudes	SMP 16 (n=11)		SMP 23 (n=12)	
	N	%	N	%
Pre				
Good	8	72,7	7	58,3
Less	3	27,3	5	41,7
Post				
Good	10	90,9	11	91,7
Less	1	9,1	1	8,3

Good attitude: score > 65

Table 3 shows the good attitude of adolescent nutrition cadres before treatment as many as 8 junior high school students 16 (72.7%) and 7 junior high school students 23 (58.3%), then after treatment increased to 10 junior high school students 16 (90.9%) and 11 Middle School Students 23 (91.7%).

Effects of Counseling on Adolescent Nutrition Knowledge

Categories of adolescent nutrition knowledge in food selection before and after counseling can be seen in table 4. In the treatment students, before nutrition counseling, as many as 13 Junior High School 16 students (35.1%) and 26 Junior High School 23 (53.1%) knowledge a good then increased to 29 students 16 junior high

(78.4%) and 35 students 23 junior (71.40%) after nutrition counseling.

Control students, before nutrition counseling who had good knowledge as many as 17 Middle School Students 16 (36.2%) and 22 Middle School Students 23

(45.8%) slightly dropped to 16 Middle School Students 16 (34.0%) and 19 Middle School Students 23 (39.6%) after nutrition counseling. This shows there is no change in knowledge in the control students.

Table 04
Distribution of Adolescent Nutrition Knowledge Based on Treatment and Control

Knowledge	SMP 16		SMP 23	
	N	%	N	%
Treatment				
Pre				
Good	13	35,1	26	53,1
Less	24	64,9	23	46,9
Post				
Good	29	78,4	35	71,4
Less	8	21,6	14	28,6
Total	37	100	49	100
Kontrol				
Pre				
Good	17	36,2	22	45,8
Less	30	63,8	26	54,2
Post				
Good	16	34,0	19	39,6
Less	31	66,0	29	60,4
Total	47	100	48	100

The influence of counseling by cadres on adolescent nutrition knowledge in the

selection of snacks can be seen in the following table.

Table 05
Average Distribution of Adolescent Nutrition Knowledge Scores Before and After Treatment

Group	Knoeledge Average Score		Sig.P (Beforevs.After)
	Before	After	
Treatment	60.2	76.4	.000*
Control	64.2	62.4	.149
Sig.P(Treatment vs. Control)	.487	.000**	

explanation : * significance of knowledge before vs after
** significance of treatment vs. control knowledge

Table 05 shows that the mean knowledge score in the treatment group before and after nutrition counseling was 60.2 to 76.4 with a significance value of .000 which showed that there were significant differences in adolescent nutrition knowledge between before and after nutrition counseling ($p < 0.05$). Whereas the mean score of knowledge in the Control group that was not counseled by the nutrition cadre before and after was 64.2 to 62.4 with a significance value of 149

indicating that there were no significant differences in adolescent nutrition knowledge.

The mean knowledge before counseling in the treatment and control groups is 60.2 and 64.2. In the Mann Whitney test a significance value of 0.487 was obtained which indicates that there were no significant differences in the two groups, while the mean score of knowledge after intervention in the treatment and control groups was 76.4 and 62.4, with the

Mann Whitney test a significance value of 0.000 was obtained indicating that there were differences significant in both groups.

Effects of Counseling on Adolescent Attitudes

The influence of counseling on adolescent attitudes can be seen in table 6. Students treated, before nutrition

counseling as many as 28 junior high students 16 (75.7%) and 42 junior high students 23 (85.7%) had good attitudes in the selection of snacks, then experienced a slight increase after nutrition counseling. 32 Junior High School Students 16 (86.5%) and 44 Junior High School Students 23 (89.8%).

Table 06
Distribution of Adolescent Attitudes Based on Treatment and Control Samples

Attitudes	SMP 16		SMP 23	
	N	%	N	%
Treatment				
Pre				
Good	28	75,7	42	85,7
Less	9	64,9	7	14,3
Post				
Good	32	86,5	44	89,8
Less	5	21,6	5	28,6
Total	37	100	49	100
Control				
Pre				
Good	34	72,3	41	85,4
Less	13	27,7	7	14,6
Post				
Good	36	76,6	41	85,4
Less	11	25,4	7	14,6
Total	47	100	48	100

Control students, before counseling who had good student attitudes were 34 junior high students 16 (72.3%) and 41 junior high students 23 (85.4%). After counseling a good attitude was almost the same, namely 36 Junior High School Students 16 (76.6%) and 41 Junior High

School Students 23 (85.4%). So the attitude of students is relatively unchanged after counseling.

The influence of counseling by cadres on adolescent nutritional attitudes in the selection of snacks can be seen in the following table.

Table 07
Average Distribution of Adolescent Nutrition Attitudes Scores Before and After Treatment

Group	Attitudes Average Score		Sig. P (Before vs. After)
	Before	After	
Treatment	79.8	84.0	.084
Control	81.8	82.6	.663
Sig.P (Treatment vs. Control)	.209*	.003*	

Table 07 shows that the average attitude score in the treatment group before and after counseling was 79.8 to 84.0 with the Wilcoxon test. Significance value of .084 showed that there were no significant differences in adolescent nutritional attitudes. , before and after namely 81.8 to 82.6 with a significance value of .663 which shows that there are no significant differences in adolescent attitudes.

The mean attitude score before counseling the treatment and control group is 79.8 and 83.8 with the Mann Whitney test obtained significance value.209 which shows no difference in the two groups, while the mean attitude score after treatment and control group intervention is 84.0 and 82.6 with significance value .003 which shows there are differences in the two groups.

DISCUSSIONS

Knowledge and Attitudes of Adolescent Nutrition Cadres

Knowledge of adolescent nutrition cadres before treatment, as many as 54.5% of 16 junior high school students and 58.3% of 23 junior high school students had good knowledge then increased to 90.9% of 16 junior high school students and 91.7% of 23 junior high school students after nutritional treatment. This shows cadre training and counseling assistance can increase cadre knowledge. Cahyono (2015) shows that nutrition education using video media can improve student knowledge.

The attitudes of adolescent nutrition cadres who were good before treatment were 72.7% of junior high school students 16 and 58.3% junior high school students 23, then after treatment increased to 90.9% junior high school students 16 and 91.7% junior high school students 23. Training and counseling can improve the attitude of nutrition cadres. Saputra et al. (2016) showed that nutrition education using video media and leaflet media can improve students attitudes in choosing food.

Effects of Counseling on Adolescent Nutrition Knowledge

Knowledge is very influential in the selection of snacks. Knowledge can be obtained both internally and externally. For internal knowledge, that is knowledge that comes from itself based on life experience, while externally, knowledge that comes from other people so that knowledge about

food for snacks increases. Praise in 2005. According to research conducted by Syafitri, knowledge can be obtained outside of school such as through the media and information from parents. Knowledge of snacks is very important to learn because it is an internal factor that influences the consumption of snacks (Yunita S 2009).

The results showed that knowledge in the treatment group before and after counseling was to 76.4 with a significance value of .000 which showed that there were significant differences in adolescent nutritional knowledge between before and after nutrition counseling by cadres ($p < 0.05$). The results of this study are in line with research conducted by Rachmawati and Nurafifah (2014), which shows the influence of nutrition counseling on respondents nutritional knowledge, as evidenced by the significance value (p) of 0,000. Likewise, nutrition education conducted by Sefaya, et al (2017) for high school students in Semarang with the pocket book media succeeded in increasing students nutritional knowledge. This is also in line with Rostania's (2013) research on the effect of nutrition education on changes in sedentary knowledge and lifestyle in over nutrition children in SDN which showed significant differences before and after receiving nutrition education ($p = 0.001$). Whereas the mean score of knowledge in the control group that was not counseled by nutrition cadres before and after was 64.2 to 62.4 with a significance value of 149 which showed no significant difference in adolescent nutritional knowledge, so one way to improve adolescent knowledge was education carried out by adolescent nutrition cadres through counseling with games.

The average knowledge of students in the treatment and control groups before counseling has a score of knowledge that tends to be the same that is around the value of 60. After giving nutrition counseling for one month, knowledge in the control and treatment group was remeasured. Based on the Mann Whitney test the results of the study showed that there were significant differences between the treatment group and the control group after the provision of nutrition counseling by adolescent nutrition cadres. The change in knowledge score in the treatment group indicates that the provision of nutrition counseling in the treatment group has increased the average score of

adolescent nutrition knowledge so as to achieve an average knowledge score of 76.4.

Effects of Counseling on Adolescent Nutrition Attitudes

Attitude is a closed reaction, not an open reaction or open behavior. Attitude is a view but in this case it is still different from a person's knowledge. Eating habits and food choices among adolescents are more complex and are influenced by many factors such as physical, social, cultural environment, the influence of the surrounding environment (friends, family, and media) and psychosocial factors (Notoadmojo 2003).

The average attitude score in the treatment group before and after counseling is 79.8 to 84.0 with a significance value of .084 which shows no significant difference in adolescent nutritional attitudes. Safitri Research 2016 explains that there is no difference in attitude changes before and after nutrition education using lecture and booklet methods. These results are in line with research conducted by Sukma and Margawati in 2014, which showed no significant relationship between attitudes in choosing snacks to eat with obesity in adolescents ($p > 0.05$). While the average attitude score in the control group that was not intervened, before and after that is 83.8 decreased to 82.6 with a significance value of $p = 0.663$ which showed no significant difference in adolescent attitudes.

Mann-Whitney Test results between the treatment and control groups before counseling showed no difference in the two groups, while the statistical test results in the treatment and control groups after counseling showed that there was an influence of adolescent nutrition counseling on attitude changes. Nutrition-related attitude scores that experienced significant changes, showed adolescent nutrition cadres succeeded in inviting other adolescents to implement good behavior in the selection of snacks for peers.

CONCLUSIONS

a. Good knowledge of adolescent nutrition cadres in the selection of snacks before treatment 54.5% in SMP 16 and 58.3% in SMP 23, then after treatment increased to 90.9% in SMP 16 students and 91.7% in SMP 23 students .

- b. The attitudes of adolescent nutrition cadres who were good before treatment were 72.7% in SMP 16 students and 58.3% in SMP 23 students, then after treatment increased to 90.9% in SMP 16 and 91.7% in SMP 23.
- c. There is an influence of counseling by adolescent nutrition cadres on adolescent knowledge in the selection of snacks
- d. There is an influence of counseling by adolescent nutrition cadres on adolescent attitudes in the selection of snacks

ACKNOWLEDGEMENTS

- a. Nutrition cadre training for teachers and homeroom teachers should be carried out so that the effect of nutrition education from teachers and homeroom teachers to the youth can be known.
- b. The number of meetings and time for treatment should be increased to see the effect of nutrition education on changes in adolescent attitudes.

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