



## The Effect of Peer Education on the Behavior of Snack Consumption in Gorontalo Regency

Deby Sinta Darise<sup>1</sup>, Healthy Hidayanty<sup>2</sup>, Suriah<sup>3</sup>, Veni Hadju<sup>2</sup>,  
Burhanuddin Bahar<sup>2</sup>, Erniwati Ibrahim<sup>4</sup>

<sup>1</sup>Graduate School of Public Health, Hasanuddin University, Makassar, Indonesia

<sup>2</sup>Departemen of Nutrition, Faculty of Public Health, Hasanuddin University, Indonesia

<sup>3</sup>Department of Health Promotion, Faculty of Public Health, Hasanuddin University, Indonesia

<sup>4</sup>Department of Environmental Health, Faculty of Public Health, Hasanuddin University, Indonesia



\*Corresponding Author: Deby Sinta Darise

Email: [darisedeby1995@gmail.com](mailto:darisedeby1995@gmail.com)

### Article Info

#### Article history:

Received 7 January 2021  
Received in revised form 29  
January 2021  
Accepted 1 February 2021

#### Keywords:

Peer Education  
Leaflets  
Knowledge  
Attitudes  
Actions  
Youth

### Abstract

Teenagers are very vulnerable to the influence of their environment. A socio-cultural environment that is not positive is a risk factor for adolescents in unhealthy behavior. Snack habits are part of behavior in the form of action. The habit of consuming snacks for students in Gorontalo reaches 78.4%. The research objective was to see the effect of peer education on knowledge, attitudes and actions of snack consumption among adolescents. This research was a quasi-experiment with a pre-test post-test control group design. The research was conducted on 19 adolescents at SMP Negeri 1 Limboto Barat and 19 adolescents at SMP Negeri 1 Boliyohuto. Duration of intervention twice a week for two weeks. Data analysis used paired t-test and independent t-test. The results showed that there were no differences in the characteristics of gender ( $p = 0.330$ ), class ( $p = 0.744$ ), age ( $p = 0.148$ ) and pocket money ( $p = 0.461$ ). There is an effect of peer education on knowledge ( $p = 0.001$ ) and attitude ( $p = 0.001$ ). Based on the difference between the peer education group and the leaflet, there was a difference in the score selection for knowledge ( $p = 0.001$ ) and attitude ( $p = 0.001$ ), but there was no difference in the score selection for the measures ( $p = 0.805$ ). The conclusion of this study is that the peer education method has an effect on increasing knowledge and attitudes regarding snack consumption. Peer education suggestions can be used as an approach by schools for students to reduce the number of snack consumption habits in adolescents.

## Introduction

According to the National Population and Family Planning Agency (BKKBN), the age range for adolescents is 10-24 years old and unmarried. Growth and development during adolescence is divided into three stages, namely early adolescence (ages 11-14 years), middle adolescents (ages 14-17 years) and late adolescence (ages 17-20 years). Teenagers are very vulnerable to the influence of their environment. A socio-cultural environment that is not positive is a risk factor for adolescents in unhealthy behavior (Wiratini, 2015). One of the problems faced by adolescents is a problem related to nutrition.

Street food according to the FAO (Food and Agricultural Organization) is food and beverages prepared and / or sold by street vendors on the streets and in public places that are eaten or consumed without further processing or preparation. Street food has become an inseparable part of people's lives, both in urban and rural areas (Hasibuan, 2020).

According to research by Vatanparast (2019) in Canada, the habit of consuming snacks for children aged 6-12 years is 92.9% and adolescents aged 13-18 years are 85.3%. These snacks are consumed 2-3 times per day (Vatanparast, 2019). Based on research by Nuryani & Rahmawati (2018) the habit of consuming snacks in students in Gorontalo reaches 78.4%. The results of a survey from the Food and Drug Administration of the Republic of Indonesia show that 80% of school children consume street food in the school environment, both from vendors and around the school canteen (BPOM, 2013).

Based on the results of a preliminary survey conducted at SMP Negeri 1 Limboto Barat, it showed that the types of food consumed by students were more high in calories, carbohydrates, saturated fats and the number of fast food consumption by students as well as student food consumption exceeding the daily portion requirement or more than 2475 kcal causing adolescents to be overweight (3.8%) and obese (16.5%) (Hatta, 2019). So the aim of this research is to see the effect of peer education on knowledge, attitudes and actions about snacks in adolescents.

## Methods

The type of research used was a quasi-experimental with a nonrandomized pre-test post-test control group design. The number of samples in this study were all students of SMP N. 1 Limboto Barat and SMP N. 1 Limboto, each of which amounted to 19. The sampling technique used in this study was purposive sampling, where samples were selected based on criteria. The inclusion criteria of this study were VIII grade students of SMP N. 1 Limboto Barat and SMP N. 1 Boliyohuto, willing to become respondents by signing the informant consent sheet and being in the same class as the educator. The exclusion criteria were absent on the day of respondent selection, the respondent's educator resigned and students who never ate snacks at school. The research instrument used was a food frequency questionnaire. Statistical test using paired t-test and independent t-test. The intervention was carried out twice a week for two weeks.

## Results and Discussion

Table 1. Distribution of Respondent Characteristics

Respondent Characteristics	Peer education		Control ( <i>Leaflet</i> )		Total		Value P
	n (19)	%	n (19)	%	N	%	
Sex							
➤ Male	8	42,1	11	57,9	19	50	*0,515
➤ Female	11	57,9	8	42,1	19	50	
Class							
➤ VIII-1	11	57,9	10	52,6	21	55,3	*0,246
➤ VIII-2	8	42,1	9	47,4	17	44,7	
Age							
➤ 13 years	7	36,8	2	10,5	9	23,7	*0,541
➤ 14 years	8	42,1	10	52,6	18	47,4	
➤ 15 years	4	21,1	7	36,8	11	28,9	
Pocket money							

➤ < 10.000	6	31,6	4	21,1	10	26,3	*0,295
➤ > 10.000	13	68,4	15	78,9	28	73,7	

Source: Primary Data, 2020, \* Chi-Square Test

Table 1, based on the characteristics of respondents based on gender, class, age, and pocket money, there is no difference between peer education and the control group.

Table 2. Distribution of Family Characteristics of Respondents in the Intervention and Control Groups

Respondent Characteristics	Peer education		Control (Leaflet)		Total		Value P
	n (19)	%	n (19)	%	N	%	
Father's Last Education							
➤ Eementary School	2	10,5	6	31,6	8	21,1	*0,497
➤ Junior School	4	21,1	7	36,8	11	28,9	
➤ High School	12	63,2	5	26,3	17	44,7	
➤ Undergraduate/Master	1	5,3	1	5,3	2	5,3	
Mother's Last Education							
➤ Eementary School	1	5,3	6	31,6	7	18,4	*0,662
➤ Junior School	4	21,1	6	31,6	10	26,3	
➤ High School	12	63,2	5	26,3	17	44,7	
➤ Undergraduate/Master	2	10,5	2	10,5	4	10,5	
Father's occupation							
➤ Teacher	1	5,3	0	0	1	2,6	*0,609
➤ Police	1	5,3	0	0	1	2,6	
➤ Trader	4	21,1	1	5,3	5	13,2	
➤ Farmer	3	15,8	14	73,7	17	44,7	
➤ entrepreneur	10	52,6	4	21,1	14	36,8	
Mother's occupation							
➤ Civil Servant	1	5,3	1	5,3	2	5,3	*0,575
➤ Teacher	1	5,3	1	5,3	2	5,3	
➤ Trader	1	5,3	2	10,5	3	7,9	
➤ House Wife	16	84,2	15	78,9	31	81,6	

Source: Primary Data, 2020, \* Chi-Square Test

Table 2, the characteristics of the respondent's family based on father's education, mother's education, father's job and mother's job, there is no difference between peer education and the control group.

Table 3 Knowledge Score between the Intervention Group and the Control Group

Group	Knowledge			Value P
	Before	After	Δ (Mean ± SD)	
	Mean ± SD	Mean ± SD		
Peer education	7,84 ± 2,03	13,89 ± 0,65	6,05 ± 1,38	*0,000
Leaflet	8,68 ± 1,91	8,58 ± 1,92	0,1 ± 0,01	*0,790

Source: Primary Data, 2020, \* Chi-Square Test

Table 3, there is a difference before and after knowledge in the peer education group and the control group ( $p = 0.000$ ). Whereas in the control group there was no difference in knowledge before and after the intervention ( $p = 0.790$ ).

Table 4 Score of Attitudes of the Intervention and Control Groups

Group	Attitude			Value P
	Before	After	$\Delta$ (Mean $\pm$ SD)	
	Mean $\pm$ SD	Mean $\pm$ SD		
Peer education	43,53 $\pm$ 4,43	50,63 $\pm$ 3,84	7,1 $\pm$ 059	*0,000
Leaflet	46,42 $\pm$ 3,67	45,79 $\pm$ 3,40	0,63 $\pm$ 0,27	*0,404

Source: Primary Data, 2020, \* Paired T Test

In table 4, there are differences before and after towards attitudes in the peer education group ( $p = 0.000$ ). Whereas in the control group there was no difference in attitude before and after the intervention ( $p = 0.404$ ).

Table 5. Scores for the Intervention Group and the Control Group Action

Group	Action			Value P
	Before	After	$\Delta$ (Mean $\pm$ SD)	
	Mean $\pm$ SD	Mean $\pm$ SD		
Peer education	69,47 $\pm$ 21,40	66,05 $\pm$ 19,11	3,42 $\pm$ 2,22	*0,710
Leaflet	102,11 $\pm$ 13,87	100,26 $\pm$ 22,32	1,85 $\pm$ 8,45	*0,565

Source: Primary Data, 2020, \* Paired T Test

In Table 4, there was no difference before and after the measures in the peer education group ( $p = 0.710$ ). Whereas in the control group there was no difference in attitude before and after the intervention ( $p = 0.565$ ).

Table 6. Differences in the Knowledge Score of the peer education group and the leaflet group

Group	Knowledge		
	Before	After	$\Delta$ (Mean $\pm$ SD)
	Mean $\pm$ SD	Mean $\pm$ SD	
Peer education	7,84 $\pm$ 2,03	13,89 $\pm$ 0,65	6,05 $\pm$ 1,38
Leaflet	8,68 $\pm$ 1,91	8,58 $\pm$ 1,92	0,1 $\pm$ 0,01
Value P	*0,197	*0,000	

Source: Primary Data, 2020 \* Independent T-Test

Table 6, shows that there is a difference in the composition of knowledge scores after the intervention between the peer education group and the leaflet ( $p = 0.000$ ).

Table 7. Differences in Attitude Scores between the Intervention Group and the Control Group

Group	Attitude		
	Before	After	$\Delta$ (Mean $\pm$ SD)
	Mean $\pm$ SD	Mean $\pm$ SD	
Peer education	43,53 $\pm$ 4,43	50,63 $\pm$ 3,84	7,1 $\pm$ 0,59
Leaflet	46,42 $\pm$ 3,67	45,79 $\pm$ 3,40	0,63 $\pm$ 0,27
P Value	*0,035	*0,000	

Source: Primary Data, 2020 \* Independent T-Test

Table 7 shows that there is a difference in the selection of attitude scores after the intervention between the peer education group and the leaflet ( $p = 0.000$ ).

Table 8. Differences in Action Scores between the Intervention Group and the Control Group

Group	Attitude		
	Before	After	$\Delta$ (Mean $\pm$ SD)
	Mean $\pm$ SD	Mean $\pm$ SD	
Peer education	69,47 $\pm$ 21,40	66,05 $\pm$ 19,11	3,42 $\pm$ 2,22
Leaflet	102,11 $\pm$ 13,87	100,26 $\pm$ 22,32	1,85 $\pm$ 8,45
P Value	*0,000	*0,000	

Source: Primary Data, 2020 \* Independent T-Test

Table 8, shows that there is a difference in the selection of post-intervention action scores between the peer education group and the leaflet ( $p = 0.000$ )

The results of this study indicate that there is an effect of peer education on knowledge in the intervention group. Based on the knowledge presentation, there was an increase in the knowledge score after being given education by the educator, namely 7.84, increasing to 13.89. These results indicate that there is an effect of peer education ( $0 < 0.05$ ) on knowledge.

When the intervention is carried out on the respondent, the learning process occurs for each respondent. Learning is a process of changing human behavior or skills due to the interaction between individuals and individuals with their environment, so that they are better able to interact with their environment (Afandi, 2012).

Peer education can increase children's knowledge allegedly because in the discussion process there is an exchange of information known to the child. All respondents in this study had never received peer education on snacks. The results of this study are in line with Alwi's research (2019), which was carried out in Makassar, which stated that peer education could increase students' knowledge of nutrition related to vegetable and fruit consumption.

The knowledge score of the leaflet group before being given treatment was 8.68 and the knowledge score after being given treatment was 8.58 where there was a decrease in the score of 0.1 and statistically there was no effect of the leaflet ( $p > 0.005$ ) on knowledge.

This research is in line with the research conducted by Herman et al (2020), at SMA 10 Makassar which stated that there was no difference in knowledge of vegetable and fruit consumption before and after giving leaflets.

Based on the results of the unpaired t test, it shows that there is a difference in knowledge between the peer education group and the control group as seen from the value of  $p = 0.000 < 0.05$ , this result illustrates that the increase in students' knowledge in conveying information about snacks is more effective through peer education than through leaflets.

With peer educators students can carry out discussions together in the form of groups so that the provision of information is felt to be interactive enough and peer education is more trusted as a source of information for adolescents because adolescents can communicate comfortably (Fatimah et al., 2019).

The same thing was shown in Ghasemi's (2019) research in Iran, that peer education has a big influence on knowledge compared to other methods such as education by teachers, health workers, lectures, pamphlets, leaflets and booklets.

There was an increase in the attitude score before and after education in the peer education group, namely 43.53, increasing to 50.63. This increase in attitude score was probably due to the timing of the attitude measurement after the activity was too close. This close time affects the knowledge about snacks that are still remembered by students, thus affecting their attitudes in the habit of consuming snacks.

The low attitudes of adolescents regarding snacks in the leaflet group were due to their lack of knowledge. Lack of information then becomes the background for the lack of knowledge and low attitudes of adolescents. One of the factors that underlie the formation of a person's attitude is knowledge (Azwar, 2013).

This is in line with Setiani's research (2020), which was conducted on pre-menopausal women, that intervention using leaflet media in adolescents did not affect attitudes. This is because the research was carried out only distributing leaflets to respondents without providing counseling and it would be more effective if collaborating with other teaching aids.

Based on Mulyawati's research (2017), attitudes are also influenced by other people who are considered important, because other people around us are one of the social components that influence our attitude. In general, individuals tend to have conformist attitudes or in line with the attitudes of people who are considered important.

This is in line with the research of Andriyan et al (2020), which was conducted on female adolescents in high school, that peer education can increase knowledge and attitudes of ALSO. The peer method is an effective method for increasing knowledge and attitudes in adolescents. Giving information through peers, respondents will receive information into knowledge, and knowledge can shape attitudes.

Education using the peer education method is not effective enough to change students' habits of consuming snacks at school. This is because there are still many factors that influence the snacking habits of students at school. According to Wowor (2018), which was carried out in Manado elementary schools, a factor related to snack behavior is the habit of carrying supplies. Not only that, this snacking habit is influenced by peers and breakfast habits. Where school children like to eat street food, the reasons include school children not having time to eat breakfast at home.

This research is in line with Marda (2020), which was carried out on adolescents 13-15 years old in Bone Regency, there was a decrease in the action score of consuming soft drinks. This shows that the intervention in the form of peer education is not effective in reducing consumption of soft drinks both before and after the intervention.

Based on the independent t test to determine the comparison of the action scores between the peer education group and the leaflet group, it shows a p value  $<0.005$ , so that statistically there is a significant difference between the peer education group and the leaflet group after being given treatment. This is in line with Linda's research (2020), in Riau that there is a difference in the score selection of perineal hygiene measures for girls after the intervention between peer education and control groups.

## Conclusion

There is an effect of peer education on knowledge in the intervention group. Based on the knowledge presentation, there was an increase in the knowledge score after being given education by the educator, namely 7.84, increasing to 13.89. These results indicate that there is an effect of peer education ( $0 < 0.05$ ) on knowledge. There was an increase in the attitude score before and after education in the peer education group, namely 43.53, increasing to 50.63.

This increase in attitude score was probably due to the timing of the attitude measurement after the activity was too close. Education using the peer education method is not effective enough to change students' habits of consuming snacks at school.

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