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Nutritional Education Based On Social Cognitive Theory On Breakfast Habits Of School-Age Teenage Girl In Small Islands In Makassar City, South Sulawesi

Siti Arum Wulandari[1] , Healthy Hidayanty[2] , Aminuddin Syam[2] , Abd.Razak Thaha[2] , Masyitha Muis[3] , Sudirman Nasir[4]

[1]Master's Degree Student, Department of Nutrition, Faculty of Public Health Hasanuddin University, Makassar, South Sulawesi, Indonesia.

[2]Lecturer,Department of Nutrition, Faculty of Public Health, Hasanuddin University, Makassar, South Sulawesi, Indonesia

[3]Lecturer, Department of Environmental Health, Faculty of Public Health, Hasanuddin University, Indonesia.

[4]Lecturer, Department of Health Promotion, Faculty of Public Health, Hasanuddin University, Indonesia.

Healthy Hidayanty, Ph.D, Department of Nutrition, Faculty of Public Health, Hasanuddin University. Fifteen Perintis KemerdekaanStreet, Tamalanrea, Makassar 90245, South Sulawesi, Indonesia. Tel: +6281342630313. Email: healthy.hidayanty@unhas.ac.id

Abstract

The prevalence of unusual breakfast on children and teenager is 16.9–58%, and about 6% of student have a low quality of breakfast. Nutrition education was expected to increase the knowledge of teenager to change their eating habits into a balanced diet.To examine the effect of nutrition education based on social cognitive theory concerning breakfast habits of school-age teenage girl in smallislands in Makassar City, South Sulawesi.This research was conducted on Kodingareng Island, Barrang Caddi Island, Barrang Lompo Island and Lae-Lae Island in Makassar City. Used the pre-post test with control group design. Sampling using a simple random sampling with a total 92 people, consisting of interventions and groups. The intervention was carried out for 12 weeks by using module. Data analysis using SPSS 16.0 application. The result of the study shows that most of respondents were in VIII class and aged 13-15 years. (a) There were differences in self-efficacy, motivation, practice and knowledge level after being given nutrition education based on social cognitive theory (Pvalue<0.05) in the intervention and control groups. (b) There was a difference in self-efficacy and motivation for breakfast (Pvalue<0.05) but there was no difference in practice and knowledge level (Pvalue>0.05) before and after nutrition education based on social cognitive theory between groups. c) There was a difference in protein (Pvalue<0.05) but no difference in energy, fat, and carbohydrate intake (Pvalue>0.05) before and after nutrition education based on social theory in the intervention group. d) There was a difference in energy intake (Pvalue<0.05) but no difference in protein, fat, and carbohydrate intake (Pvalue>0.05) before and after nutrition education based on social theory in the control group. e) There was a difference in energy and carbohydrate intake (Pvalue<0.05), but there was no difference in protein and fat intake (Pvalue>0.05) before and after nutrition education based on social cognitive theory between groups.

Keywords: Nutrition Education, Social Cognitive Theory, Breakfast, Teenage Girl.

INTRODUCTION

According to Global Nutrition Report UNICEF on 2020, teenager are more likely to experience malnutrition problems than overnutrition problems. The prevalence of malnutrition in teenager is 31.6% for male and 25.9% for female. Meanwhile, according to the NCD Risk Factor Collaboration (NCD-RisC) in 2017, the prevalence of malnutrition on children and teenage globally based on BMI/U is 12.4% for male and 8.4% for female. Other data stated that around 9% in the world and 12% of teenage girl in Indonesia are underweight (UNICEF, 2019; Maretalini, et.al. 2020). In Indonesia, the Riset Kesehatan Dasar(Riskesdas) data in 2018 showed that around 8.7% of teenager aged 13-15 years and 8.1% of teenager aged 16-18 years were underweight and very thin. In South Sulawesi Province, about 10.74% of teenager aged 13-15 years and 10.4% of teenager aged 16-18 years were underweight and very thin. Several cities/districts still showed a fairly high prevalence of malnutrition in teenager. One of them is Makassar. Based on data from the Riset Kesehatan Dasar(Riskesdas)in 2018, the prevalence of thin and very thin teenager aged 13-15 yearsin Makassar City was 12.17% and teenager aged 16-18 years was 15.8%. The results of Hidayanty's research, et al. (2018) stated that 14.6% of teenager on Barrang Lompo Island, Makassar expeienced malnutrition. Teenagerare one of the groups that are susceptible to various o nutritional problems, both malnutrition and overnutrition (Cunningham, K., et.al. 2015). As the teenagerpopulation increases, teenager nutritional problem need a special attention because it may affected the growth and development of the body and its impact on adult nutritional problem (Washi, SA., et.al 2010; Rachmayani., et.al 2018).

The prevalence of unusual breakfast in children and teenager is 16.9–58% and about 6% of schoolchildren have a low-quality of breakfast. Teenager who have bad breakfast habits tend to experienced malnutrition (Hardinsyah 2018; Rohmah. 2020). Inappropriate nutritional behavior need to be changed by increase the knowledge. When the acceptance of a new behavior is based on knowledge, awareness and a positive attitude, the behavior have the quality of long lasting. Nutrition education is expected to be able to increase the knowledge of teenager so they can change their eating habits into a balanced diet (Agnesia, 2020). Likewise, teenager who has a good knowledge about nutrition is expected to have a good nutritional status (Notoatmodjo, 2007; Rahayu, et.al. 2020). Nutrition education is expected to be able to increase the knowledge of teenager so they can change their eating habits into a balanced diet (Agnesia, 2020). So far, many interventions have been carried out in Indonesia to address the problem of malnutrition, as well as a direct counseling, using an interesting media or distributing additional food. However, the interventions which based on a theory are rarely.

Social cognitive theory targets behavioral change by emphasizing personal and environmental factors, this intervention is very effective and meaningful in overcoming nutritional problems in children and teenager. In Iran, interventions based on social cognitive theory was conducted by Bagherniya, et.al (2018) can reduce IMT and waist

circumference as well as an increase in self-efficacy in teenage girl who have a BMI percentile more than 85. The same research was also conducted by JJ Anesi, et.al (2017) in the United States on teenager aged 9-12 years, the results have a large influence on BMI, physical activity and teenager self-efficacy. While in Indonesia Hidayanty, et al (2016) have applied this theory in the intervention of reducing the anthropometric index of obese teenager in Makassar City, the result was an increase in self-efficacy so that there is a strong motivation in a person to makexchanges to diet and do a physical activity. In (2020) interventions based on a specific malnutrition teenage girlhave been implemented by using a module in an island that have obtained IPR number 000232421. These studies focus on teenager who are overweight. In the other hand, a research which focuses on malnutrition for teenager is still very limited, especially those conducted on teenager who live on a smallisland. For this reason, this research aimed to examine the effect of nutritional education based on social cognitive theory on self-efficacy, self-motivation, practice and knowledge level of breakfast habits on a school-age teenager girl in the small islands of Makassar City, South Sulawesi.

MATERIALS AND METHODS

The type of this research was an experimental research with pre-test and post-test by using a control group design. The research was conducted on Kodingareng Island, Barrang Caddi Island, Lae-lae Island and Barrang Lompo Island, Makassar City, South Sulawesi Province. The research started from June-October 2021. The population in this research were 249 teenage girl who were enrolled as a junior high school (SMP) and senior high school (SMA) students on Kodingareng Island, Barrang Caddi Island, Lae-lae Island and Barrang Lompo Island. Makassar, South Sulawesi. Kodingareng Island had chosen as the intervention group while Barrang Caddi Island, Lae-lae Island and Kodingareng Island became the control group.

The calculation of the sample was based on several results of the variables from the previous studies. While the sampling used the simple random sampling. The total sample were 92 teenage girls. Consisting of 46 people for the intervention group and 46 people for the control group. Data collection techniques started from measuring height using a microtoice brand GEA, weight using a digital scale brand SECA, LILA using a measuring tape, food recall 2x24 hours to determine intake and questionnaires to determine knowledge and practice of breakfast. The intervention was carried out for 12 weeks using a media module that already had IPR with the number 000232421 while the control group used leaflets.

Self-efficacy, self-motivation, practice and level of knowledge were measured using a questionnaire that had been validated, then the good category was determined if the score was >Q3, moderate if the score was between Q1-Q2 and less if the score was <Q1. Meanwhile, the intake variable is categorized as good if 15-30% of the total RDA, less if <15% of the total RDA and more if >30% of the total RDA. Data analysis using Microsoft Excel, Nutrisurvey application, WHO Antro plus, and SPSS 16 using the Wilcoxon test, Paired T-Test, Independent T-Test and Mann Whitney tests.

RESULTS

General Characteristics of Respondents

Table 1. Distribution of Respondents based on Student Characteristics

Student Characteristics	Intervention n = 46 respondent		Control n = 46 respondent		Total n = 92 respondent		P-Value
	n	%	N	%	n	%	
Class							
VII	0	0.0%	11	8.4%	11	11.9%	0.001*
VIII	13	28.3%	7	5.3%	20	21.7%	
IX	9	19.5%	7	5.3%	16	17.3%	
X	0	0.0%	16	12.2%	16	17.3%	
XI	8	17.4%	5	3.8%	13	14.1%	
XII	16	34.8%	0	0.0%	16	17.3%	
Age							
10-12 Years Old	3	6.5%	8	17.3%	11	11.9%	
13-15 Years Old	20	43.4%	33	71.7%	53	57.6%	0.000**
16-18 Years Old	23	50.0%	5	10.8%	28	30.4%	

Source: Primary Data, 2021

*Mann-Whitney Test

**Independent T-Test

Based on table 1, it can be seen that the characteristics of respondents based on class are mostly in VIII class as many as 20 people (21.7%), while based on age most of them are 13-15 years old (57.6%).

Table 2. Distribution of Respondents based on Family

Student Characteristics	Intervention n = 46 respondent		Control n = 46 respondent		Total n = 92 respondent		P-Value
	n	%	n	%	n	%	
Father's							

Education							
No School	3	6.51%	3	6.51%	6	6.5%	
Elementary School	38	82.6%	20	43.4%	58	63.0%	0.001*
Junior High School	1	2.17%	12	26.0%	13	14.1%	
Senior High School	4	8.7%	9	19.5%	13	14.1%	
University	0	0.0%	2	4.3%	2	2.1%	
Father's Occupation							
Civil Servant	0	0.0%	1	2.2%	1	1.1%	
Trader	2	4.4%	2	4.4%	4	4.3%	
Fisherman	40	86.9%	36	78.2%	56	60.8%	
Laborer	1	2.2%	1	2.2%	2	2.1%	
Construction Laborer	1	2.2%	0	0.0%	1	1.1%	0.155**
Sailor	1	2.2%	0	0.0%	1	1.1%	
Shipbuilder	0	0.0%	1	2.2%	1	1.1%	
Grab Driver	0	0.0%	1	2.2%	1	1.1%	
Pensioner	1	2.2%	0	0.0%	1	1.1%	
Etc	0	0.0%	1	2.2%	1	1.1%	
Does not work	0	0.0%	3	6.6%	2	3.2%	
Mother's Education							
No School	1	2.2%	2	4.4%	3	3.2%	
Elementary School	34	74.8%	18	39.6%	52	56.5%	0.002*
Junior High School	7	15.4%	11	24.2%	18	19.5%	
Senior High School	4	8.8%	13	28.6%	17	18.4%	

University	0	0.0%	2	4.34%	2	2.1%	
Mother's Occupation							0.525**
Civil Servant	1	2.2%	0	0.0%	1	1.1%	
Pedagang	10	22.0%	12	26.4%	22	23.9%	
Fisherman	1	2.2%	0	0.0%	1	1.1%	
Taylor	0	0	1	2.2%	1	1.1%	
Housewife	34	74.8%	33	72.6%	67	72.8%	

Source: Primary Data, 2021

*Man Whitney Test

**Chi SquareTest

Based on table 2, it can be seen that the most education of the respondent's father and mother is elementary school. Father with58 people (63.0%) and mother with 52 people (56.5%). Meanwhile, the occupation of the respondent's father is mostly fishermen by 56 people (60.8%) and the mother's occupation is mostly traders by 22 people (23.9%).

Self Efficacy

Table 3. Differences in Respondents' Self-Efficacy Before and After Nutrition Education

Group	Before		After		P-Value
	Min- Max	Median	Min-Max	Median	
Intervention	37-51	43	40-55	46	0.000*
Control	20-57	42	25-58	42	0.033*
P-Value	0.493**		0.008***		

Source: Primary Data, 2021

*Wilcoxon Test

**Mann WhitneyTest

*** Independent T-Test

Table 3 shows that there is a significant difference in self-efficacy before and after being given nutrition education based on social cognitive theory with P-Value = 0.000 (P.Value<0.05) in the intervention group and P-Value = 0.033 (P.Value<0.05) in the control group. . Before the nutrition education which based on social cognitive theory, there was no significant difference in self-efficacy between the intervention group and control group with p value = 0.493

(P.Value>0.05) and after nutrition education based on social cognitive theory there was a significant difference in self-efficacy between intervention groups and control group with p=0.008 (P.Value<0.005).

Table 4. Percentage of Respondents Self-Efficacy Level Before and After Nutrition Education

Group	Efikasi Diri	Before		After		△		P-Value
		n	%	n	%	N	%	
Intervention	Good	3	6.5%	12	26.1%	9	↑19.6%	0.000*
	Moderate	31	67.4%	34	73.9%	3	↑6.5%	
	Less	12	26.1%	0	0.0%	12	↓26.1%	
Control	Good	11	23.9%	13	28.3%	2	↑4.4%	0.033*
	Moderate	18	39.1%	15	32.6%	3	↓6.5%	
	Less	17	37.0%	18	39.1%	1	↑2.1%	
P-Value	0.493**			0.008***				

Source: Primary Data, 2021

*Wilcoxon Test

**Mann WhitneyTest

*** Independent T-Test

Table 4. shows the percentage of respondents' self-efficacy levels in both groups before and after the intervention. For the intervention group, there was an increase in respondents who had a "good" category by 19.6% and respondents who had a "less" category decreased by 26.1%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category of 4.4% but respondents who had a "less" category increased by 2.1%.

Self-motivation

Table 5. Differences in Self-Motivation of Respondents Before and After Nutrition Education

Group	Before		After		P-Value
	Min- Max	Median	Min-Max	Median	
Intervention	38-65	57	40-66	60	0.000*
Control	43-69	57	43-70	58	0.000*
P-Value	0.785**		0.031***		

Source: Primary Data, 2021

*Wilcoxon Test

** Independent T-Test

***Mann WhitneyTest

Table 5 shows that there is a significant difference in self-motivation related to breakfast before and after being given nutrition education based on social cognitive theory with P-Value = 0.000 (P.Value <0.05) in the intervention group and p = 0.000 (P.Value <0.05) in the control group. Before the nutrition education based on social cognitive theory, there was no significant difference in self-motivation between the intervention group and control group with P-Value = 0.785 (P.Value>0.05) and after nutrition education based on social cognitive theory there was a significant difference in self-motivation related to breakfast between the intervention group and the control group with a value of p=0.031 (P.Value<0.05).

Table 6. Percentage of Respondents Self-Motivation Level Before and After Nutrition Education

Group	Self Motivation	Before		After		△		P-Value
		n	%	n	%	n	%	
Intervention	Good	7	15.2%	14	30.4%	7	↑15.2%	0.000*
	Moderate	28	60.9%	31	67.4%	3	↑6.5%	
	Less	11	23.9%	1	2.2%	10	↓21.7%	
Control	Good	9	19.6%	10	21.7%	1	↑2.1%	0.000*
	Moderate	22	47.8%	24	52.2%	1	↑4.4%	
	Less	15	32.6%	12	26.1%	3	↓6.5%	
P-Value	0.785**			0.031***				

Source: Primary Data, 2021

*Wilcoxon Test

** Independent T-Test

***Mann WhitneyTest

Table 6 shows the percentage of respondents' breakfast motivation levels in both groups before and after the intervention. For the intervention group, there was an increase in respondents who had a "good" category by 15.2% and respondents who had a "less" category decreased by 21.7%. While for the control group, there was an increase in respondents who had a "good" category of 2.1% and respondents who had a "less" category decreased by 6.5%

Knowledge Level

Table 7. Differences in Knowledge Levels Regarding Respondents' Breakfast Before and After Nutrition Education

Group	Before		After		P-Value
	Min- Max	Median	Min-Max	Median	
Intervention	16-27	22	22-30	25	0.000*
Control	12-28	23	20-30	25	0.000**
P-Value	0.190***		0.907***		

Source: Primary Data, 2021

*Wilcoxon Test

** Paired T-Test

***Mann WhitneyTest

Table 7 shows that there is a significant difference in knowledge related to breakfast before and after being given nutrition education based on social cognitive theory with p = 0.000 (P.Value <0.05) in the intervention group and p = 0.000 (P.Value <0.05) in the intervention group. control. There was no significant difference in knowledge between the intervention group and the control group before being given nutrition education based on social cognitive theory with a value of p=0.190(P.Value>0.05) and after nutrition education based on social cognitive theory with a value of p=0.907 (P.Value> 0.05).

Table 8. Percentage of Practices and Knowledge Levels Regarding Respondents Breakfast Before and After Nutrition Education

Group	Practice and Knowledge Level	Before		After		△		P-Value
		n	%	n	%	N	%	
Intervention	Good	6	13.0%	12	26.1%	6	↑13.2%	0.000*
	Moderate	30	65.2%	34	73.9%	4	↑8.7%	
	Less	10	21.7%	0	0.0%	0	↓21.7%	
Control	Good	8	17.4%	13	28.3%	5	↑10.9%	0.000**
	Moderate	26	56.5%	29	63.0%	3	↑6.5%	
	Less	12	26.1%	4	8.7%	8	↓17.4%	
P-Value	0.190***			0.907***				

Source: Primary Data, 2021

*Wilcoxon Test

** Paired T-Test

***Mann WhitneyTest

Table 8 shows the percentage of respondents' breakfast practices and knowledge levels in both groups before and after the intervention. For the intervention group, there was an increase in respondents who had a "good" category by 13.2% and respondents who had a "less" category decreased by 21.7%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category by 10.9% and respondents who had a "less" category decreased by 17.4%.

Nutritional Intake

Table 9. Differences in Nutritional Intake Leveles of Respondents Breakfast Before and After Nutrition Education

Intake	Group	Before		After		P-Value
		Min- Max	Median	Min-Max	Median	
Energy	Intervention	0-650	3.91	302-450	3.27	0.154*
	Control	0-721	4.02	277-390	3.15	0.015*
	0.608***			0.001****		
Protein	Intervention	0-58	11	10-28	14	0.023**
	Control	0-39	13	10-20	15	0.468**
	0.012****			0.830****		
Fat	Intervention	0-42	14	10-34	16	0.129*
	Control	0-38	15	10-29	16	0.778**
	0.838***			0.168****		
Carbohydrate	Intervention	0-105	49	45-67	53	0.184**
	Control	0-168	43	40-61	50	0.102*
	0.448****			0.042****		

Source: Primary Data, 2021

*Wilcoxon Test

** Paired T-Test

***Independent T-Test

***Mann WhitneyTest

Table 9 shows that in the intervention group there was a significant difference in protein intake, p value = 0.023 (P value <0.05) but there was no significant difference in energy intake (p value = 0.154), fat intake (p value = 0.129) and carbohydrate intake (p value = 0.129). =0.184) (Pvalue>0.05) before and after being given nutrition education based on social cognitive theory. In the control group there was a significant difference in energy intake, p value = 0.015 (PValue <0.05) but there was no significant difference in protein intake, p value = 0.778, fat intake and carbohydrate intake, p value = 0.102 (P value> 0.05) before and after nutrition education based on social cognitive theory in the control group. While between the two groups, there was a difference in energy intake, p value = 0.001 and carbohydrate intake, p value = 0.042 (P value <0.05) but there was no significant difference in protein intake, p value = 0.168 and fat intake, p value = 0.042 (P value> 0.05) before and after being given nutrition education based on social cognitive theory.

Table 10. Percentage of Energy Adequacy Level of Respondents Breakfast Before and After Nutrition Education

Intake	Group	Energy	Before		After		△		P-Value
			n	%	N	%	n	%	
Energy	Intervention	Good	34	73.9%	46	100.0%	12	↑26.1%	0.154*
		Less	12	26.1%	0	0.0%		↓26.1%	
		More	0	0.0%	0	0.0%	0	↓0.0%	
	Control	Good	29	63.0%	42	91.3%	5	↑10.9%	0.015*
		Less	12	26.1%	4	8.7%	3	↓17.4%	
		More	5	10.9%	0	0.0%	8	↓10.9%	

	0.608***				0.001****				
Protein	Intervention	Good	29	63.0%	42	91.3%	13	↑28.3%	0.023**
		Less	12	26.1%	0	0.0%	0	↓26.1%	
		More	5	10.9%	4	8.7%	1	↓2.2%	
	Control	Good	25	54.3%	31	67.4%	6	↑13.1%	0.468**
		Less	8	17.4%	0	0.0%	0	↓17.4%	
		More	13	28.3%	15	32.6%	2	↑4.3%	
	0.012****				0.830****				
Fat	Intervention	Good	20	43.5%	39	84.8%	19	↑41.3%	0.129*
		Less	16	34.8%	0	0.0%	16	↓34.8%	
		More	10	21.7%	7	15.2%	3	↓6.5%	
	Control	Good	16	34.8%	45	97.8%	29	↑63.0%	0.778**
		Less	27	58.7%	1	2.2%	26	↓56.5%	
		More	3	6.5%	0	0.0%	8	↓6.5%	
	0.838***				0.168****				
Carbohydrate	Intervention	Good	24	52.2%	46	100.0%	22	↑47.8%	0.184**
		Less	20	43.5%	0	0.0%	20	↓43.5%	
		More	2	4.3%	0	0.0%	2	↓4.3%	
	Control	Baik	16	54.3%	46	100.0%	30	↑45.7%	0.120*
		Kurang	27	58.7%	0	0.0%	27	↓58.7%	
		Lebih	3	6.5%	0	0.0%	3	↓6.5%	
P-Value	0.448****				0.042****				

Source: Primary Data, 2021

*Wilcoxon Test

** Paired T-Test

***Independent T-Test

***Mann WhitneyTest

Table 10 shows the percentage level of nutritional intake in terms of energy, protein, fat and carbohydrates. In the first part, the energy adequacy level of the respondents' breakfast in both groups before and after nutrition education based on social cognitive theory. For the intervention group, there was an increase in respondents who had a "good" category by 26.1% and respondents who had a "less" category decreased by 26.1%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category by 10.9% and respondents who had a "less" category decreased by 17.4%.

In the second part, the level of protein adequacy of respondents' breakfast in both groups before and after nutrition education based on social cognitive theory. For the intervention group, there was an increase in respondents who had a "good" category by 28.3% and respondents who had a "less" category decreased by 26.1%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category by 13.1% and respondents who had a "less" category decreased by 17.4%.

In the third part, the level of fat adequacy of the respondents' breakfast in both groups before and after nutrition education based on social cognitive theory. For the intervention group, there was an increase in respondents who had a "good" category by 41.3% and respondents who had a "less" category decreased by 6.5%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category by 63.0% and respondents who had a "less" category decreased by 6.5%.

In the last section, the level of carbohydrate adequacy of respondents' breakfast in both groups before and after nutrition education based on social cognitive theory. For the intervention group, there was an increase in respondents who had a "good" category by 47.8% and respondents who had a "less" category decreased by 4.3%. Meanwhile, for the control group, there was an increase in respondents who had a "good" category by 45.7% and respondents who had a "less" category decreased by 6.5%.

DISCUSSION

Self Efficacy

Self-efficacy is one of the constructs in social cognitive theory that related to individuals' beliefs in their ability to exercise control over challenging demands on themselves. These beliefs play a significant influence on several aspects of a teenager's life including diet. According to social cognitive theory, self-efficacy will increase when people are motivated to be better, when they are exposed to positive models and when they are taught strategies they can use to overcome challenges. Teenagers do not perform tasks that they feel are beyond their capabilities unless they believe they can produce the desired results. The more confident that they can handle the situations effectively, the more they seize opportunities and they better in express their talents, thereby increasing their chances of success (Pajafares F, 2006).

In the intervention group using the nutritional guide module media for teenage girls, there was a significant difference in self-efficacy related to breakfast before and after being given education. Likewise in the control group who used leaflets there were significant differences before and after being given education. Education based on self-efficacy theory can increase a person's self-confidence to make self-regulation. According to Rohman (2013) the factors that can affect a person's self-efficacy are social support, motivation, availability of infrastructure, health, competence, intention, discipline and responsibility. Meanwhile, according to Bandura (1997) factors that can affect self-efficacy are culture, gender, rewards and the role of individuals in the environment.

This is in line with our research which stated that the increase in self-efficacy in respondents is due to full social support from the school and family environment. In accordance with the social cognitive theory that we use. Where we implicate families and schools as a self-efficacy reinforcement in the process of changing respondents' behavior. In the intervention group, we implicated the role of the family which was held once a month for three months through discussion meetings to support the changes with respondents at home as well as providers of food at home. Whereas for the school's role as a provider of facilities and infrastructure for us to hold nutrition education classes for respondents, both classrooms and help us presenting our respondents every week. In the control group, the school, in this case the teacher, played a role in helping researchers in providing media leaflets every week to teenagers who were our respondents. The results of Prayogo's research (2019) stated that family and friend support had a significant influence on changes in breakfast behavior among teenager in Sidoarjo. An intervention study was also conducted on 100 medical students at Hamadan University, Iran who lived in dormitories stated that self-efficacy related to breakfast behavior in the intervention group had a significant increase due to strong social support, in this case roommates in the dormitory (Salimi, 2001). N. et al, 2018). The results of other studies that support by Sadr Hashemi et al. (2017) related to nutrition education through counseling for elementary school students in Iran has a strong influence on increasing self-efficacy and breakfast behavior.

Self-motivation

Motivation comes from the Latin word "move" which means movement. Motivation is also defined as a force that causes a person to behave specifically to achieve certain goals (Tohidi, et al. 2021). Everyone has different motivations in achieving their goals. Factors that influence motivation include attitudes, interests, needs, abilities, knowledge, beliefs and the role of the environment (Ardana, 2008). This is in line with our research which stated that the motivation of the respondents increases because they have the interest and ability to change after we describe various things related to the benefits and negative impacts of skipping breakfast. They are aware that their bodies need a balanced intake and with breakfast their nutritional needs will be fulfilled. The intervention study conducted by Rahayu, et. al (2021) in 228 high school students (SMA) in Makassar city stated that nutrition education is an effective strategy in producing positive changes related to self-efficacy and students' motivation towards breakfast.

Another supportive study was carried out by Wahyuningsih, et. al (2020) for school-age children in Mataram, nutrition education using nutrition discs can increase children's motivation to eat breakfast.

Knowledge Level.

Breakfast is an important activity before doing a physical activity which accounts for about 15-30% of the nutritional adequacy rate. Breakfast can provide sufficient energy for teenagers in carrying out activities that are dense and require high energy (Kalsum & Halim, 2016). Basically breakfast will make an important contribution to some of the nutrients the body needs such as protein, fat, vitamins and minerals. The availability of these nutrients is useful for physiological processes in the body (Khomsan, 2005).

According to the results of our research, the increase in knowledge and changes in breakfast practice among respondents was caused because respondents listening to every nutrition education session well as evidenced by the presence of respondents who never less than 95% during 12 weeks of activity. Respondents have understood quite well the portion, the benefits of breakfast and the impact of skipping breakfast. In addition, respondents also get motivation from the family environment and school environment so that there is strong self-efficacy to make behavioral changes to do better. The results of Nurlaely's research (2015) stated that the use of media in nutrition education for 166 grade 5 elementary school (SD) students in Central Java succeeded in increasing knowledge, attitudes and practices towards breakfast. Research by Mahdali (2019) also stated that there was a change in knowledge and practice of teenager aged 12-15 years in Gorontalo after being given nutrition education. Other supporting research results by Kia, et al (2015) state that nutrition education can increase knowledge and self-efficacy in 217 female students in Shiraz district, Iran regarding healthy eating patterns.

Nutritional Intake

According to the results of our research, this is due to the lack of knowledge of parents as providers of breakfast for teenagers, seen from the majority of respondents' parental education only graduating from elementary school. In our side, three meetings for 12 weeks are still insufficient to provide nutritional knowledge, especially without using a media. There are still a small number of respondents' parents who are not fluent in writing and reading, so we help them in the process of filling in the absences. In addition, our focus in each meeting was to build the spirit and motivation of parents to support the breakfast behavior in respondents. A literature study conducted by Shirazi (2017) on teenager, 10-19 years of age related to teenager nutritional behavior, stated that the level of parental education greatly influences teenagers' breakfast. Teenagers who have mothers with high levels of education rarely skip breakfast, because teenage mothers know the benefits of breakfast and the negative impact of skipping breakfast.

Second, the availability of food in households is less stable due to food access that is sometimes difficult to access because of economic condition and in terms of affordability. Most of the respondent's parents work as fishermen who

come home with lots of catch if the weather and sea breeze are favorable, unfortunately not infrequently the weather and wind direction were not supportive so they only came home with a few catches and often empty-handed, while we were there. This is a major factor in the provision of food in the household. Meanwhile, in terms of affordability, the islands where we studied are located at four different points and to provide food on the island is a bit difficult because it only relies on passenger ships that go to Makassar city every day to load wet and dry food, even the food obtained depends on the supplier so it's quite difficult to fulfill food on this island. A study conducted by Hoque, et al (2018) on 318 respondents aged 11-12 years stated that parental income has a significant influence on teenager's nutritional intake. Parents who have a high income will be able to provide food in the household.

A study conducted by Nuryanti, et al (2019) stated the food diversity in fisherman households in Balatang village, Malili sub-district, East Luwu district is classified as food insecurity, this is due to the lack of income to provide diverse food and meet the body's needs in accordance with nutritional balanced principles. Other supporting research was also carried out by Faradita, et al (2016) which stated that most households on the isolated island of Gili Labak, Sumenep Madura Regency came up with food insecurity in the degree of hunger in the wave season, this was because they could not access food from suppliers.

CONCLUSIONS AND SUGGESTIONS

The conclusion of this research is that environmental support both from the role of the family and the role of the school can increase the motivation and self-efficacy of teenager to make a positive behavioral changes to breakfast. Nutrition education based on social cognitive theory using modules has the same effect as nutrition education based on social cognitive theory using leaflets. Even though it's the same, the media modules provided in the form of books provide more information, are durable and can be stored and read over and over again, while the leaflets present material that is simple and easy to read, easily damaged so that it is can not be able to read over and over again. Meanwhile, economic factors, education factors and food availability are the causes of teenager intake, which have not shown significant changes.

It is recommended for further researchers to implicate peers as one of the factors supporting changes in the teenager environment.Provide nutrition education with a more frequent of time to parents of teenagers by using easy an media to understand, food recall needs to be carried out more than 1 x 24 hours as an evaluation of breakfast intake and intervention is needed with various sectors, especially the agricultural and food sectors as a solution in providing food during the wave season.

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