The Effect of Nutrition Extension Using Leaflet on Increasing Knowledge and Attitude in Consuming Vegetables and Fruit in Adolescents in Madrasah Tsanawiyah Bahrul Mubarak Toronipa at Konawe Regency, Indonesia

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Abstract. Based on the Basic Health Survey (2018) data, 96.8% of teenagers between the ages of 10 and 14 eat less than five servings of fruit and vegetables per day on average. This study aims to ascertain how nutrition counseling utilizing leaflets affects teenagers' knowledge and attitudes about eating fruits and vegetables at the Madrasah Tsanawiah Bahrul Mubarak Toronipa in Konawe Regency. One group of pre-and post-tests is part of this quasi-experimental study design. The sample for this study consisted of 40 students selected through purposive sampling from the population of active students enrolled in classes VII and VIII at Madrasah Tsanawiyah Bahrul Mubarak Soropia, Konawe Regency. Questionnaires were used for interview data collection, and the Paired T-test statistic was used for data analysis to ascertain the relationship between the independent and dependent variables. The results show that after receiving nutrition education, adolescents knew 92.5% more about the advantages of eating vegetables than before (55%). Teenagers knew 67.5% less about eating fruit than they did after receiving nutrition instruction, whereas their understanding increased to 97.5%. Before nutrition education, adolescents' views toward eating vegetables were 90.0%, and after, they were 97.5%. Before receiving nutrition instruction, adolescents' views toward eating fruit were 67.5%, but afterward, they were 90.0%. The findings indicate a relationship between counseling and teenage knowledge about eating fruit ($p = 0.001$) and vegetables ($p = 0.000$). Additionally, there is a relationship between counseling and teenage attitudes about eating fruit ($p = 0.005$), but there is no relationship between the two.

Keywords: Knowledge Leaflet Media Extension, Consumption Vegetable and Fruits, Adolescent

1. Introduction

The World Health Organization (WHO) recommends 400 grams, or 5 servings, of fruit and vegetables per day as a sufficient intake [1]. According to data from the Basic Health Survey in 2018, 96.8% of teenagers between the ages of 10 and 14 consumed less than five portions of fruit and vegetables each day of the week. In contrast, data from DKI Jakarta in 2013 showed that residents over the age of 10 consumed an average of 1.1 portions of vegetables and 0.7 portions of fruit per day, While the average daily consumption of fruit and vegetables among residents over the age of ten is reported to

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be 0.7 and 1.1 portions, respectively, according to data from DKI Jakarta in 2013, the average daily consumption of fruit and vegetables in the South Jakarta region is only 0.9 and 0.6 portions, respectively [2].

A concern pertaining to eating habits is the underconsumption of vegetables. A food source high in vitamins and minerals, vegetables are excellent for growth, development, and health. The function of vitamins and minerals cannot be easily substituted, despite the relatively minor need; therefore, consuming these substances is vital. Consuming vegetables is highly recommended, especially for kids [3], especially those in elementary school [AUS].

Some study shows that lack of fruit consumption can result in various impacts, namely lowering immunity or body immunity such as easily catching flu, easily experiencing stress or depression, high blood pressure, digestive disorders such as constipation, gum disease, bleeding, canker sores, eye problems, wrinkled skin, arthritis, osteoporosis, acne, excess blood cholesterol, and causes cancer [4].

Study conducted by Herman, et al., there were differences in knowledge, attitudes, vegetable consumption and fruit consumption of teenagers before and after nutrition education at SMAN 10 Makassar in 2018. The level of students' knowledge before being given the intervention was 65.1% sufficient knowledge and 34.9% insufficient knowledge. After being given nutrition education using leaflets, the percentage who had a sufficient level of knowledge increased to 69.8% and lacking knowledge decreased to 30.2%, while at the attitude level it showed that before being given the intervention, they had a positive attitude of 95.3% and a negative attitude of 4.7%. After being given nutrition education using leaflets, there was an increase in the post-test score which showed that all respondents were classified as having a positive attitude, namely (100%) and the level of fruit consumption before being given the intervention had a fruit consumption frequency of less than 100%. Meanwhile, the portion of vegetable consumption is sufficient at 74.4% and the portion of vegetable consumption is less than 25.6%. After being given nutrition education using leaflets, there was no change in the frequency of vegetable consumption, while the portion of fruit consumption increased significantly to 76.7% and the portion of fruit consumption decreased to 23.3% [5].

Based on Southeast Sulawesi Basic Health Survey 2018 data with a frequency of vegetable and fruit consumption of 88.87%, in Konawe district 95.78% of teenagers aged 10-14 years consumed 84.14% of vegetables and fruit [2]. The results of Indriani's (2016) study showed that vegetable and fruit consumption in Watulondo sub-district at the household level was mostly in the low category, namely 85.7%. According to Pramaditha's 2018 study, at SDN 05 Mandonga, it was stated that the majority of students consumed less fruit per day on average, namely 54.2%, with the type of seasonal fruit most frequently consumed being rambutan, namely 35.6% every 1-3 times. /Sunday. Meanwhile, the type of non-seasonal fruit that is most often consumed is banana, namely 42.4% every 1-3 times/week.

2. Methods

This study used a single group pre- and post-test design, making it quasi-experimental. Madrasah Tsanawiyah (MTs) Bahrul Mubarak Toronipa, Soropia District, Konawe Regency was the study's location in April 2021. The 40 pupils who were enrolled in

grades VII and VIII at Madrasah Tsanawiyah (MTs) Bahrul Mubarak Toronipa, Soropia District, Konawe Regency, comprised the study's population. Purposive sampling, a non-random sampling approach, was employed to take the sample. For this study, only classes VII and VIII were used as samples.

Interviews were used to gather knowledge and attitude data, and a questionnaire regarding the advantages of eating fruit and vegetables was distributed twice, one before the intervention (pre-test) and once after it (post-test). The study variables were described using univariate analysis of the data, and the paired T-test statistical test was used in bivariate analysis to ascertain the relationship between the independent and dependent variables. Since the data were normally distributed, a p-value of less than 0.05 was considered acceptable.

3. Results

In the univariate analysis, researchers can find out the description of the variables studied, as in Table 1. The results of the analysis show that based on the level of knowledge of consuming vegetables, the majority of the sample, 55%, had good knowledge about consuming vegetables before nutrition counseling and the majority of the sample was 92.5%. % have good knowledge about eating vegetables after receiving nutrition education. When it comes to fruit consumption, the majority of the sample (97.5%) has good knowledge about eating fruit after receiving nutrition education, while the majority (67.5%) has good knowledge about eating fruit before receiving nutrition education. Nutrition, the majority of the sample (90.0%) had a sufficient attitude toward eating vegetables before receiving nutrition counseling, and the majority (97.5%) had an adequate attitude toward eating vegetables after receiving nutritional counseling. The majority of the sample (67.5%) had a sufficient attitude toward eating fruit before receiving nutrition education, and the majority (90.0%) had a sufficient attitude toward eating fruit after receiving nutrition education.

Table 1. Univariate analysis

Sample Distribution Based on Level of Knowledge and Attitudes in Consuming Vegetables				
Variable	**Before counseling**		**After Counseling**	
Knowledge	**n**	**%**	**N**	**%**
Good	22	55	37	92,5
Enough	13	32,5	3	7,5
Less	5	12,5	0	0
Total	**40**	**100**	**40**	**100**
Attitude	**n**	**%**	**N**	**%**
Enough	36	90,0	39	97,5
Less	4	10,0	1	2,5
Total	**40**	**100**	**40**	**100**
Sample Distribution Based on Knowledge and Attitudes of Consuming Fruit				
Variable	**Before counseling**		**After Counseling**	
Knowledge	**n**	**%**	**n**	**%**

Good	27	67,5	39	97,5
Enough	12	30,0	1	2,5
Less	1	2,5	0	0
Total	**40**	**100**	**40**	**100**
Attitude	**n**	**%**	**n**	**%**
Enough	27	67,5	36	90,0
Less	13	32,5	4	10,0
Total	**40**	**100**	**40**	**100**

Finding the effect of nutrition education through leaflets while accounting for the influence of each independent variable and the dependent variable is the aim of this bivariate study. Table 2 displays the correlation between the independent and dependent variables about the effect of data leaflets and nutritional advice. The investigation's conclusions, which came from statistical analysis with the paired sample t-test, showed that, before receiving nutritional counseling, the average knowledge score was 94%, and after the counseling, it rose to 125%. Apart from that, the computed t value is -4.697 with a p value of 0.000, suggesting that leaflet-based nutritional education influences teenagers' knowledge of eating vegetables.

Before and after nutritional counseling, the average knowledge score was 111% and 132%, respectively, according to statistical analysis using the paired sample t-test. Apart from that, the estimated t value is -3.550 with a p value = 0.001, suggesting that leaflet-based nutritional education influences teenagers' knowledge of fruit consumption. After getting nutritional advice, the average attitude score increased to 73% from 70% before, according to statistical analysis using the paired sample t-test. Apart from that, the estimated t value is -1.599 with a p value of 0.118, suggesting that nutritional advice given through leaflets has no effect on teenagers' attitudes toward consuming vegetables.

The results of statistical analysis using the paired sample t-test obtained the average attitude score. Before being given nutritional counseling, it was 59% and after nutrition counseling it was 68%. Apart from that, the calculated t value is -2.979 with a p value = 0.005 so it can be concluded that there is an influence of nutritional education using leaflets on teenagers' attitudes about consuming fruit.

Table 2. Bivariat analysis

The Effect of Nutrition Counseling Using Leaflets on Adolescents' Knowledge and Attitudes About Consuming Vegetables				
Variable		**Average value**	**t**	**P**
Knowledge	Before After	94% 125%	-4,697	0,000
Attitude	Before After	70% 73%	-1,599	0,118
The Effect of Nutrition Counseling Using Leaflets on Adolescents' Knowledge and Attitudes About Consuming Fruit				
Variable		**Nilai Rata - Rata**	**t**	**P**
Knowledge	Before After	111% 132%	-3,550	0,001

Attitude	Before After	59% 68%	-2,979	0,005

4. Discussion

The results of a statistical study utilizing the paired sample t-test are shown in Table 2. Before obtaining nutrition education, the average knowledge score was 94%; after receiving it, the average score increased to 125%. Apart from that, the computed t-value is -4.697 with a p-value of 0.000, suggesting that leaflet-based nutritional education influences teenagers' knowledge of vegetable consumption. The Paired T-test analysis with a p-value of 0.000 indicates that this study supports Ananda's findings in line with that of Al Rahmad, who found that counseling has a major impact on raising or altering knowledge about the consumption of fruits and vegetables [7]. It is also consistent with a study by Saputra et al. demonstrating a noteworthy difference between students' pre- and post-leaflet-media education knowledge of fruits and vegetables [8].

A study by Raharjo et al. stated that several factors influence low fruit and vegetable consumption: nutritional knowledge, preferences, availability, media exposure, and parental income. The nutritional knowledge of male respondents was good, and they had good knowledge of fruit and vegetable consumption behavior, amounting to 17 people (68%). Meanwhile, most female respondents had good knowledge, namely 54 people (90%). Education about nutrition is essential in realizing the behavior of choosing healthy foods, especially fruit and vegetables [9].

According to the study's statistical analysis, which employed the paired sample t-test, the average knowledge score was 111% before receiving nutritional counseling and 132% following it. Aside from that, the computed t-value is -3.550 with a p-value of 0.001, indicating that nutritional education provided through leaflets influences teens' awareness of fruit consumption. This study is consistent with Sukmaningrum's, which found a p-value of 0.000 from the Wilcoxon test difference analysis before and after counseling via booklet media. Based on the test findings, it can be deduced that grade 5 kids' level of awareness about fruits and vegetables is influenced by counseling utilizing booklet media [10]. This research supports the findings of Zulaekah, who found a substantial difference in the nutritional understanding of primary school students with anemia before and after an intervention using booklet media ($p = 0.0001$) [11].

This study confirms the findings of study Laili, which found that knowledge levels before and after counseling using cartoon animation media differed (p-value 0.011) ($p < 0.05$) [12]. The average attitude score before receiving nutritional advice was 70%, and after receiving it, it was 73%, according to the study's statistical analysis utilizing the paired sample t-test. Aside from that, the computed t-value is -1.599 with a p-value of 0.118, indicating that nutritional education via leaflets does not affect teens' opinions toward the consumption of vegetables. This study supports the findings of Fitriani et al., who found no differences in attitudes between the pre-and post-educational periods when films and pamphlets were used for teaching. It is evident that there is no difference in views between the two based on the results, which show a p-value of 0.239 before therapy and a p-value of 0.711 following counseling [13].

The McNemar test analysis's findings indicate that there is no significant difference between the attitudes of teenagers before and after leaflets are given; in other words,

there is no difference in the teens' attitudes before and after giving the leaflets, as indicated by the probability value (p) = 0.500 (p>0.05). This demonstrates that handing out brochures had no effect on pupils' perceptions of the value of fruit and vegetables [5].

The average attitude score, as determined by the statistical analysis of the study using the paired sample t-test, was 59% before nutrition instruction and 68% after counseling. Apart from that, the estimated t value is -2.979 with a p value = 0.005, suggesting that leaflet-based nutritional education influences teenage attitudes toward fruit eating. This study supports Ananda's findings. Students' opinions at SDN 105349 Paluh Kemiri were impacted by the employment of leaflets for vegetable and fruit instruction, according to the Paired T-test analysis, which produced a p-value of 0.003 <0.05 [6]. In that it demonstrates the substantial impact of counseling on raising or modifying knowledge on the consumption of fruits and vegetables, this study validates the findings of Al Rahmad [7]. This finding aligns with a research study conducted by Saputra et al. [8], which demonstrates a noteworthy distinction in students' comprehension of fruits and vegetables between pre- and post-leaflet-media schooling.

5. Conclusion

The level of knowledge among adolescents about the benefits of consuming vegetables before nutrition education was 55% and after nutrition education was 92.5%. The level of knowledge of adolescents about consuming fruit before nutrition education was 67.5% and after nutrition education was 97.5%. Adolescents' attitudes about consuming vegetables before nutrition education was 90.0% and after nutrition education was 97.5%. Adolescents' attitudes about consuming fruit before nutrition education was 67.5% and after nutrition education was 90.0%. The use of pamphlets for nutritional advice has an impact on teenagers' understanding of the benefits of eating vegetables. The awareness of teenagers regarding fruit consumption is influenced by nutritional counseling through the use of leaflets. The views of teens about the consumption of vegetables are unaffected by nutritional counseling through leaflets. Teenagers' views toward eating fruit and vegetables are influenced by nutritional counseling through the use of leaflets.

Suggestion

For schools, it is hoped that they can provide information and support in the form of learning or counseling using leaflets about consuming vegetables and fruit for school children.

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