The Effect of Online QuizWhisser Game on Knowledge and Level of Fish Consumption in Overweight Adolescents in Surakarta

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Abstract

Obesity is the accumulation of excessive fat which causes the overweight. Obesity or overweight in terms of health is a disease of malnutrition, as a result of food consumption that far exceeds its needs. To overcome it, knowledge needs to be increased as a precaution by conducting nutrition education. The sampling technique used is purposive sampling, followed by random sampling that is used to determine the sample. The respondents consist of 68 junior high school students in Surakarta City. First, the subjects are screened using a google form containing several questions regarding personal data. Then, the adolescents who had a z-score >1 SD were used as the research samples. The results of statistical tests after nutrition education in the control groups and the treatment group showed that there is a significant difference in nutritional knowledge (p = 0.000) while the results of statistical tests on fish consumption levels in the two groups showed that there is no difference and no significant effect was indicated by (p-value > 0.05). Conclusion**:** Nutrition talks and quizwhisser games about the importance of fish consumption affect the nutritional knowledge of overweight adolescents. However, they do not affect the level of fish consumption in overweight adolescents.

Keywords: *Obesity, Nutritional Knowledge, Level of Fish Consumption.*

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A. INTRODUCTION

Obesity in the world has more than doubled since 1980. According to World Health Organization (WHO), obesity is an abnormal or excess accumulation of fat in the body. Adolescents are one of the target groups at risk for excess nutrients. The excess nutrient in adolescents is characterized by relatively excessive body weight when compared to the age or height of the adolescents (Aini, 2012).

Based on data of Riset Kesehatan Dasar (Riskesdas) in 2013, it is stated that obesity that occurs in children aged 13-15 years is 2.5%. Obesity is caused by excessive food intake resulting in accumulation of fat, lack of exercise, as well as fiber intake and nutritional knowledge which is still classified as lacking (Shrimptom, 2012).

Being overweight causes risk factors for chronic diseases. Riswanti's research showed that obesity in children aged 5-15 years in Indonesia is related to the level of child nutrition education. Nutrition education or nutrition counseling is an educational approach to produce individual behavior to increase food improvement (Shweta, 2011).

There has been a lot of educations provided by health workers for overweight adolescents, in the form of educational games containing material about how to prevent obesity itself. There is also education about the importance of consuming vegetables and fruit. However, no one has conveyed the importance of consuming fish for adolescents. This quizwhisser game is a quiz game in the form of snakes and ladders, containing the material about the importance of consuming fish, the benefits of fish, and recommendations that must be consumed.

B. METHODS

This study is a quasi-experimental research with a redesign of the pre-test and post-test control group design. The sampling technique used was purposive sampling, followed by random sampling used to determine the sample. The respondents consist of 68 junior high school students in Surakarta City. Respondents were asked to fill out a questionnaire distributed through a google form containing several questions regarding personal data first, then the data would be filtered again using the z score calculation. Respondents who had a z-score > 1 SD were used as the research samples.

The sample inclusion criteria were junior high school students in VII-VIII grades both male and female, who were classified as overweight based on the results of the z-score, had a smartphone/ computer/laptop, and were willing to be research subjects. Meanwhile, the exclusion criteria were: students who were not present or who withdrew during the research, those who did not have food allergies, and had diarrhea on the previous days when the study was conducted. The dependent variable in this study was knowledge of nutrition and the level of fish consumption, while the independent variable was a quizwhisser game about the importance of fish consumption.

Before the intervention in the form of nutrition lectures and quizwhisser games, they were first observed and given a pre-test and after the intervention a post-test was given using the google form. Standard of knowledge before (pre-test) and after (post-test) was carried out to assess the level of knowledge and nutritional status of subjects on the intervention given through a questionnaire containing several questions related to the material delivered through online nutrition friendly and quizwhisser games

Nutrition education material through nutrition talks and web-based game "Quizwhisser" are educational games in the form of several questions related to the importance of fish consumption for junior high school adolescents, the importance of protein consumption, and recommendations for protein consumption, especially good fish that are offered to consume. Data analysis was processed using the Wilcoxon Rank Test and the Kruskal Wallis test to determine the effect of the intervention given through nutrition lectures and quizwhisser games on nutritional knowledge and fish consumption levels in adolescents.

C. RESULT

1. The Characteristics of Research Subject

This study was conducted on 68 junior high school adolescents, both male and female, who had been screened through a questionnaire with each group consisting of 34 adolescents in the control group and 34 adolescents in the treatment group. Characteristics of research subjects can be seen in Table 1.

Table 1. Characteristic of Research Subjects

Characteristic	Control Group		Treatment Group	
	(n)	(%)	(n)	(%)
Age				
12 years old	4	11,8	4	11,8
13 years old	23	67,6	13	38,2
14 years old	4	11,8	15	44,1
15 years old	3	8,8	2	5,9
Gender				
Male	16	47,1	13	38,2
Female	18	52,9	21	61,8
(n)	34	100	34	100

Based on Table 1 above, it can be seen that most of the respondents in the control group aged 13 years are 67.6%, while most of them in the treatment group aged 14 years old are 44.1%. Most of the respondents are female both in the control group and the treatment group.

2. The Differences and the Effect of Quizwhisser Game on Nutrition Knowledge, Nutritional Attitudes and Levels of Fish Consumption in Overweight Adolescents

The respondents in this study were 68 students, who are divided into two groups, 34 students for the control group and 34 students for the treatment group. The differences and effects of each group can be seen in Table 2.

Table 2. The Effect of Quizwhisser Game on Nutrition Knowledge, and Level of Fish Consumption

Variable	Group Control (n=34)			Group Treatment (n=34)			p
	Min	Max	Average	Min	Max	Average	
Nutrition knowledge							
Before	20	36	30,29	20	40	32,12	0,000[b]
After	23	38	32,21	28	40	35,05	
p	0,000[a]			0,000[a]			
Fish Consumption							
Before	2	6	3,82	2	6	3,85	0,024[b]
After	2	6	4,38	2	6	4,26	
p	0,001[a]			0,010[a]			

Source: Primer Data 2021

Nutrition education was given once a week for one month with material about the importance of fish consumption, both in the group given nutrition lectures (control) and

the wuizwhisser game group (treatment). The adolescents played it online and are guided and supervised by the researcher. Meanwhile, the control group is given the nutrition talk once a week for a month using the zoom meeting method with the same material. The difference and the effect of nutritional knowledge and attitude on changes in the level of fish consumption of the adolescents in the control group and the treatment group after the intervention can be seen in Table 2.

In Table 2, it can be seen that the knowledge of nutrition in the two groups, both the control group and the intervention group are increased after being given nutrition talk and education by the quizwhisser game. It can be seen in the average score of each group that increased from (30,29 - 32,21 in the control group) and (32,12 – 35,05 in the treatment group). After analyzing the data using the Wilcoxon statistical test, the results (p-value < 0.05) were obtained, which means that there was a significant difference before and after the intervention was given to both the control group and the treatment group. The results of data analysis using the Kruskal-Wallis test were obtained (p-value < 0.05), which means that the intervention given to the control group and the treatment group had a significant effect on the level of knowledge of the subject and the level of fish consumption.

After being given nutrition education, there was no increase or decrease in the average level of fish consumption in the two groups. It is supported by the results of statistical tests showing p-value = > 0.05, which means that there is no significant difference in the level of fish consumption in the control and treatment groups.

D. DISCUSSION

1. Nutrition Knowledge

After being given a nutrition intervention, followed by data analysis, there was a significant difference in nutritional knowledge in the control group who was given nutrition lectures and the treatment group who was given the quiz whisser game (p-value = 0.000). The quizwhisser game about the importance of fish consumption has an effect on the level of fish consumption in the remake as evidenced by (p-value = 0.024). It shows that the respondents' knowledge increases and they understand the content of the material given through nutrition talk and quizwhisser games. Nutrition education is an educational approach to increase the knowledge and attitudes of adolescents towards nutrition (Claire, 2010).

The results of this study are in line with the research of Safitri (2016) and Sulistiani (2021) about the effect of nutrition education. Their research showed that there was a significant difference in subject knowledge after being given nutrition education through lectures (p-value < 0.05). The results of this study are also in line with research conducted by Kurniawati (2017), and Hardianti (2020) about nutrition education provided through the game of snakes and ladders, where after being given the game of snakes and ladders affects students' knowledge.

2. Fish Consumption

The difference test showed that there was no significant difference in the level of fish consumption before and after nutrition education for both the control group and the treatment group (p-value > 0.05). Period be required to assess a person's behavior change is still relatively short. Changes in behavior related to fish consumption in overweight adolescents are strongly influenced by family factors, where the family is a role model for adolescents in increasing their fish consumption. The role of teachers in schools can shape the mindset of teenagers regarding the importance of fish consumption. Consistently and continuously environmental support can form a healthy lifestyle.

Based on research conducted by Silalahio (2016) about nutrition education that only increased the knowledge of female adolescents. However, it did not increase their nutritional intake (p-value > 0.05). The result of this study is also not in line with research conducted by Azhari (2020) that nutrition education affects attitudes and behavior in consuming fruits and vegetables.

E. CONCLUSION

Nutrition education through nutrition lectures and quizwhisser games can increase knowledge (p-value = 0,000). The average score of nutritional knowledge in the treatment group who was given the quizwhisser game was higher than the control group who was given online nutrition lectures. The level of fish consumption for junior high school students is still low. The nutrition education did not affect the level of fish consumption in both the control group and the treatment group (p-value > 0.05).

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