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Effectiveness of Snakes Ladders and Leaflet on Teenagers' Knowledge and Attitude About Stunting Prevention

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ABSTRACT

Stunting prevention must start as early as possible. Teenagers are expected to have a healthy lifestyle, and good nutrition and avoid early marriage. This is done to prevent giving birth to stunted children. This research aims to determine the effectiveness of snakes and ladders media and leaflets in preventing stunting at SMKN 01 Warungasem. The research method used is quasi-experimental with are and post-design. With a population of 119 students. The sample used was purposive sampling. By collecting data through questionnaire interviews. Data analysis uses the Paired T-test. Results of statistical tests using the Paired T-test showed that the use of snakes and ladders educational media for knowledge resulted in a P value of 0.0001, while for attitudes a P value of 0.0001 was obtained. For leaflet media, the knowledge variable has a *P value* of 0.0001, while for attitude it has a *P value* of 0.0001. For the *N Gain Score* analysis, the Snakes and Ladders media effectiveness score results is in 64,43 % (enough) effective, while the effectiveness score results in increasing attitudes are 51,91% (less) effective, effectiveness score results using leaflet media is in the 54,98 % (less) effective, and media effectiveness score results for attitude is not effective 23,92. From the results above, it can be concluded that there is a difference in the average knowledge and attitude of using leaflets and snakes and ladders media as well as Snakes and Ladders media for Stunting Prevention which is proven to be more effective in increasing the knowledge and attitudes of teenagers. The recommendation given is the need for a comprehensive approach to education carried out by utilizing media that can raise the motivation of teenagers to know, want, be able and be independent to prevent stunting.

Keywords: *Healthy, Leaflet, Media*

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INTRODUCTION

Stunting is a long process that starts from the preconception period where the mother's health greatly influences the health of the child she is born with. Stunting occurs when the embryo is still in the stomach and may appear when the child turns two years old. The problem of stunting is a problem that antagonistically affects the physical and body of young people. As well as the increasing number of children suffering from illness, the problem of stunting has even been highlighted by WHO and needs to be resolved immediately(Zurhayati & Hidayah, 2022) The impact can be long-term and comprehensive, not only physically but also psychologically.(Dewey & Begum, 2011). Indonesia is the third-largest country in Southeast Asia, with an average number of cases of 36.4%. Factors that influence a child's health come from the mother's health before and during pregnancy. When a young woman who is malnourished and anemic begins to become a mother, her situation will become worse when she becomes pregnant with a body condition that does not meet nutritional needs, and this will hurt the fetus. A fetus that does not get enough nutritional intake while in the womb will be at risk of being born as a stunted baby. (Kementrian Kesehatan RI, 2018; UNICEF, 2018). Knowledge of nutrition is an important factor that affects the nutritional behavior of individuals, families, and societies Media provision of nutritional and health education to parents is one of the efforts that can be made to enhance the growth and development of children.(Demirozu et al., 2012)

Teenagers are the main key to preventing stunting. Stunning prevention starts as early as possible in adolescence. Handling stunting from upstream involves teenagers. Teenagers must have healthy lifestyle habits, have good nutrition, and avoid early marriage. This is done so that later teenagers, especially young women, can give birth to children who are free from stunting. Nutritional problems in adolescents have serious implications for the health of young people which impact the welfare of current and future generations, as well as the economy and health of the country. The nutritional status of adolescent girls is closely related to pregnancy health outcomes and child survival. (Partner, 2022) The lack of knowledge among teenagers about stunting can be caused by a lack of information about stunting among teenagers, so it is necessary to hold youth classes where youth classes are useful for providing early knowledge about matters related to adolescent health and can prevent stunting. This is explained in the Notoatmojo theory which states that by reading or hearing a person will be able to remember 10% of what he reads or hears, such as in the form of leaflets, slides, booklets, and the like, hearing (tape or hearing other people's conversations), then he will remember 20 % of what he hears, sees (charts, photos, and graphs), then he will remember 50% of what he hears and sees, pronounces the words himself (media, wayang, script, and drama), then he will remember 70% of what he says, and says it while working on health education material himself (usually using media that is similar to the real object and through real experience), then he will remember 90% of the material.(Ardian, 2014; Notoatmodjo, 2010)

Results of the 2022 Indonesian nutritional status study with a sample of 334,848 infants and toddlers conducted in 486 districts and cities in 33 provinces showed that stunting among toddlers decreased by 2.8% from 24.2% to 21.16%. Seeing the still high prevalence of stunting in Indonesia, there is concern that there will be a "lost generation" in the future. SSGI 2022 data shows that the prevalence of stunted toddlers in Central Java reached 20.8% spread across all districts and cities, with the lowest prevalence range being 10.4% and the highest in the Brebes Regency area at 29.1%. Batang district itself still has a high prevalence of stunting, namely 23.1%. According to WHO (2013), the health problem limit for indicators of short and very short toddlers (stunting) is > 20%. (Eka Susanty et al., 2022; Perdana et al., 2017)

Based on Batang Regency Government data from e-PPGBM results, the stunting rate recorded in 2020 was 16.71 % or 5,915 stunted babies out of 35,397 babies. Meanwhile, in 2021, it fell to 14.14%, or 5,275 stunted babies, from 37,302 babies or children. then decreased again in 2022, namely 13.56%, or 5,182 babies.

Based on the results of a pre-survey that researchers conducted at the Warungasem Health Center, it show that the stunting rate is still high in the Warungasem area; namely, in August 2021, the stunting rate reached 7.87%, or 290 children were recorded as very short and stunted. In February 2022, the stunting rate decreased by 6.50%, or 258 children. And in August 2022, the recorded figure was 7.69%, or 252 children affected by stunting. The education provided to local teenagers is not always carried out routinely every month, so researchers are interested in researching to determine the effectiveness of snakes and ladders media and leaflets to prevent stunting the knowledge and attitudes of young women at SMKN 01 Warungasem.(Dinas Kesehatan Kabupaten Batang, 2023)

RESEARCH METHODOLOGY

The research design in this study is a quasi-experimental research with a two-group pretest-posttest design. According to Creswell (2015), a quasi-experiment is an experimental design that is carried out without randomization but involves assigning participants to groups. The quasi-experimental approach used was a one-group pretest-posttest design. According to Christensen (Seniati, Yulianto, and Setiadi, 2017), a one-group pretest-posttest design is also called a before-after design. At the start of the research, measurements were first taken of the dependent variables that the participants had.(Creswell & Creswell. J David, n.d.)

The population in this study was female teenagers at SMKN 01 Warungasem class II, totaling 119 students. A sample is a portion taken from the entire object being studied and is considered to represent the entire population. Determining the sample in this study using the Slovin formula, we obtained a sample of 35 students. The sample criteria in this research are in accordance with the inclusion criteria below:

a. Female students are willing to take part in intervention activities.
b. Female students are willing to be respondents.
c. Grade 11 students at SMKN 01 Warungasem Kab. Stem

d. If the female student in the sample cannot take part in the intervention activities, she will be replaced with another female student from the same class.

Exclusion criteria:

a. Students who are over 21 years old
b. Transfer students from other schools

Before data analysis, a normality test is first carried out to determine the distribution of the data, and then it will be used to select the appropriate test. The parameters used to see the distribution of analytical data in this research are the Shapiro-Wilk parameters because the number of respondents was less than 50. Based on the results of the analysis, it was found that the data was normally distributed because it was >0.05, so the bivariate test used was the paired T test. And this research complies with the ethical test number 067/B.02.01/KEPK/V/2023.

RESULT AND DISCUSSION

Stunting is the main problem included in the government's Medium-Term Development Plan program, which must be addressed immediately. Various lines and fields are trying to intervene so that stunting can be overcome, not only in the health sector. According to the theory of behavior formation, behavior formation is influenced by the individual's knowledge and attitude, although the environment also contributes. Knowledge is the result of knowing, and this occurs after someone has sensed a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge or cognition is a very important domain for the formation of a person's actions because, from experience and research, it turns out that behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge and Stunting is a multi-causal nutritional problem. (Notoatmodjo, 2010; Wahyuningsih & Nugraheni RM., 2019). Attitude is a view, opinion, response, or assessment accompanied by a tendency to act. This research examines the effectiveness of educational media on the average knowledge and attitudes about preventing stunting among teenagers in vocational schools. Based on the research, the following results were obtained:

A. Respondent Characteristic

Table 1 Distribution of Sample Characteristics

Sample Characteristic		**N**	**%**
Leaflet			
Age	16 Year Old	14	40,0
	17 Year Old	21	60,0
Ular Tangga			
Age	16 Year Old	19	54,3
	17 Year Old	14	40,0
	18 Year Old	2	5,7

In table 1, descriptive statistical tests have been carried out on the sample characteristics, namely the age column in the leaflet group, which shows that 40.0% are 16 years old and 60.0% are 17 years old. Meanwhile, in the snakes and ladders group, 54.3% were 16 years old, 40.0% were 17 years old and 5.7% were 18 years old. The gender in the two sample groups is female.

B. Univariate Analysis

1. Snakes and Ladders Media
   a) Knowledge
      The average sample scores based on answers to knowledge questions are as follows:

Table 2. Frequency of Knowledge Value Categories Before Being Given Snakes and Ladders Media Intervention

Level Knowledge	Frequency (N)	Presentase %
Good	11	31,4
Enough	5	14,4
Poor	19	54,2
Total	35	100

Tabel 4.6 menunjukan sebelum diberikan intervensi melalui media ualr tangga pengetahuan responden memperoleh nilai baik sebesar 31,4% jumlah siswi yang memperoleh nilai cukup sebesar 14,4 % dan jumlah siswi yang mempunyai nilai kurang adalah sebanyak 54,2 %.

Table 3. Frequency of Knowledge Value Categories After Being Given Snakes and Ladders Media Intervention

Level Knowledge	Frequency (N)	Presentase %
Good	18	51,4
Enough	-	-
Poor	17	48,5
Total	35	100

Table 3 shows that after being given intervention through snakes and ladders knowledge media, 51.4% of the female students got good grades while 48.5% of the students got poor grades.

Knowledge is the result of knowing, and this occurs after someone has sensed a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge or cognition is a very important domain for the formation of a person's actions because, from experience and research, it turns out that behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge (Notoatmodjo, 2010)

b) Attitude

Tabel 4. Frequency of Attitude Value Categories Before Being Given Snakes and Ladders Media Intervention

Attitude	Frequency (N)	Presentase %
Support	25	71,4
Not Support	10	28.5
Total	35	100

Table 4.8 shows the attitude values before the intervention was given via Snakes and Ladders media; the unsupportive value was 28.5% and the supporting value was 71.4%.

Tabel 5. Frequency of Attitude Value Categories After Being Given the Snakes and Ladders Media Intervention

Attitude	Frequency (N)	Presentase (%)
Mendukung	28	80
Tidak Mendukung	7	20
Total	35	100

Table 5 shows that there was an increase in attitude scores after being given the intervention using snakes and ladders media, with a value of supporting 80% and not supporting 20%.

2. Media Leaflet
   a) Knowledge

   The average sample scores based on answers to knowledge questions are as follows:

   Tabel 6. Frequency of Knowledge Value Categories Before Giving Leaflet Media Intervention

Level of Knowledge	Frequency (N)	Presentase %
Good	12	34,3
Enough	6	17,2
Poor	17	48,5
Total	35	100

   Table 6 shows that before being given the intervention via knowledge leaflet media, respondents obtained good grades of 34.3%; the number of female students who obtained adequate grades was 17.2%; and the number of female students who had poor grades was 48.5%.

   Tabel 7. Frequency of Knowledge Value Categories After Being Given Leaflet Media Intervention

Level of Knowledge	Frequency(N)	Presentase %
Good	14	40,0

Enough	9	25,7
Poor	12	34,3
Total	35	100

Table 7 shows that before the intervention was given through knowledge leaflet media, respondents obtained good grades of 40.0%, the number of female students who obtained adequate grades was 25.7% and the number of female students who had poor grades was 34.3%.

b) Attitude

The average sample scores based on answers to attitude questions are as follows.

Table 8 Frequency of Attitude Value Categories Before Being Given the Leaflet Media Intervention

Attitude	**Frequency (N)**	**Presentase %**
Permisif	17	48,5
Not Permisif	18	51,5
Total	35	100

Table 8, shows that before the intervention was given through leaflet media, the number of supporting values had a percentage of 48.5% and the non-supporting values had a percentage of 51.5%.

Table 9. Frequency of Attitude Value Categories After Being Given Leaflet Media Intervention

Attitude	**Frequency (N)**	**Presentase %**
Permisif	27	77,2
Not Permisif	8	22,8
Total	35	100

Table 9, shows that after being given intervention through leaflet media, the supporting value was 77.2% and the non-supporting value was 22.8%. According to Notoatmodjo (2012), changes in attitude are influenced by factors of knowledge and belief or beliefs obtained from sensory results, one of which is obtained through education or the learning process. Learning is an effort to master something useful for life to obtain the skills that humans need to live in society. The attitude assessment carried out in this study was measured from respondents' answers regarding the attitude statements on the pre- and post-test questionnaire sheets.

C. Bivariate Analysis

Before selecting an appropriate effectiveness test, a normality test is first carried out using Shapiro-Wilk.

1) Normality Test

Before further analysis, each piece of data has been tested for normality to determine the distribution of the data, and this will then be used to select the appropriate test. The parameters used to see the distribution of analytical data in this research are the Shapiro-Wilk parameters because the number of respondents was less than 50. Based on the results of the analysis, it was found that the data was normally distributed because it was >0.05, so the bivariate test used was the paired T-test.

2) Paired T- Test

The paired T test is a bivariate test to see the average difference between two pairs of data. The average difference will be used to see the effect of an intervention. In this study, the purpose of the paired T test is to determine the effect of snakes and ladders media and leaflets.

Table 10 Results of Comparison of Average Knowledge Values Before and After Being Given the Snakes and Ladders Media Educational Intervention

	Mean	Difference	P value
Knowledge before intervention	8,97	10,400	0,000
Knowledge after intervention	19,37		

Paired T test, the difference between after and before

In the table, the P value is <0.05, which means there is a difference in the average knowledge before and after being given the Snakes and Ladders educational media intervention. The results of the analysis of the effectiveness of the Snakes and ladders educational media on young women's knowledge (Aprilia, 2021)about early detection of stunting are P=0.000 (P<0.005), so it can be concluded that there is an influence of the use of snakes and ladders educational media on young women's knowledge about early detection of stunting. The knowledge of young women about early detection of stunting has increased due to the provision of education through snakes and ladders media, from an average knowledge of 8.97% with the lowest score of 4 and the highest score of 13 to the lowest score of 15 and the highest score of 22 with an average of 19.37%. According to research Dina Aprilia, there was an increase in knowledge after being given an intervention with the snakes and ladders game regarding the impact of smoking on health in teenagers in the city of Palembang. (Aprilia, 2021)

Table 10. Results of Comparison of Average Attitude Values Before and After Being Given the Snakes and Ladders Media Educational Intervention.

	Mean	Difference

				P Value
Attitude Intervention	Before	22,17	9,343	0,000
Attitude Intervention	After	31,51		
Paired T test, the difference between after and before				

In the table, the P value is <0.05, which means there is a difference in the mean attitude before and after being given the Snakes and ladders educational media intervention. The results of the analysis of the effectiveness of the Snakes and ladders educational media on the attitudes of young women regarding early detection of stunting are P=0.000 (P<0.005), so it can be concluded that there is an influence of the use of the snakes and ladders educational media on the attitudes of young women regarding early detection of stunting.

The attitude of young women regarding early detection of stunting has increased due to the intervention of snakes and ladders educational media to prevent stunting, from an average of 22.17% with the lowest value of 17 and the highest value of 26 to an average of 31.51% with the lowest value of 28 and the highest value of 34.

Table 11. Results of the Comparison of Average Knowledge Values Before and After Being Given the Leaflet Media Educational Intervention

		Mean	Difference	P Value
Knowledge Intervention	Before	9,66	8,514	0,000
Knowledge Intervention	After	18,17		
Paired T test, the difference between after and before				

In the table, the P value is <0.05, which means there is a difference in the average knowledge before and after being given the leaflet educational media intervention. The results of the analysis of the effectiveness of leaflet educational media on the knowledge of young women about early detection of stunting are P = 0.0001 (P<0.005), so it can be concluded that there is an influence of providing education using leaflet media about early detection of stunting.

Adolescent girls' knowledge about early detection of stunting has increased due to the provision of education through leaflet media from an average of 9.66 with the lowest score of 5 and the highest score of 14 to an average of 18.17 with the highest score of 23 and the lowest score of 14. This is in line with

research Eri, that shows that there is a positive influence on health education using e-leaflet media, which increases respondents' knowledge. (Farokah et al., 2023). Hal ini sama dengan penelitian bahwa melalui program pendidikan efektif dalam meningkatan pengetahuan, sikap dan perilaku remaja terkait nutrisi Demikian juga dengan hasil penelitian yang di lakukan siti tahun 2021 menunjukan bahwa dalam melibatkan remaja dapat memperkuat kontribusi remaja dalam meningkatkan Kesehatan remaja melaksanakan prinsip hidup sehat agar memiliki pengetahuan, sikap dan keterampilan untuk melaksanakan prinsip hidup sehat dalam mendukung pencegahan stunting pada remaja (Rusliyanti et al., 2015)

Table 12 Results of the Comparison of Average Attitude Values Before and After Being Given the Leaflet Media Educational Intervention

	Mean	Difference	P Value
Attitude before intervention	28,26	3,114	0,000
Attitude after intervention	31,37		

Paired T test, the difference between after and before

In the table, the P value is <0.05, which means there is a difference in the average attitude before and after being given the leaflet educational media intervention. The results of the analysis of the effectiveness of leaflet educational media on the attitudes of young women regarding early detection of stunting are P = 0.000 (P<0.005), so it can be concluded that there is an influence of providing education using leaflet media regarding early detection of stunting. The attitude of young women has increased from an average of 8.29 with the lowest score of 25 and the highest score of 31, to an average of 31.37 with the lowest score of 28 and the highest score of 34. The same thing was also done by Baiq Meisha (2022). a positive increase of 76.7% for 23 respondents. Educational intervention activities are carried out by spreading messages and instilling confidence so that people are not only aware, know, and understand, but also want to carry out recommendations that are related to health or improving living standards.

3) N Gain Score Test

After carrying out a mean test on each intervention medium used, the N-Gain score test was then carried out to find out how effective the media used was in increasing the knowledge and attitudes of young women at SMKN 01 Warungasem.

Table 13. N-Gain Effectiveness Interpretation Category

Percentage (%)	**Interpretation**

< 40	Ineffective
40-55	Less Efective
56-75	Enough
>76	Efective

Sumber: Hake,R.R, 1999

Tabel 14 Snakes and Ladders Media Effectiveness Score Results

	Mean (%)	Maximum (%)	Minimum(%)	Information
Knowledge	64,43	84,21	47,06	Enough
Attitude	51,91	68,42	33,33	Less Effective

Based on the results of the N-gain score test calculation, it shows that the average N-gain score for the snakes and ladders group in the knowledge column is 64.43%, which is included in the quite effective category, while for the attitude column, the average is 51.91%, which is included in the less effective category.

Tabel 15. Leaflet Media Effectiveness Score Results

	Mean (%)	Maximum (%)	Minimum (%)	Information
Knowledge	54,98	86,67	26,67	Kurang Efektif
Attitude	23,,92	53,85	22,22	Tidak Efektif

Based on the results of the N-Gain score calculation, it shows that the average N-gain score for the knowledge column is 54.98%, which is included in the less effective category, while for the attitude column it has an average of 23.92%, which is included in the ineffective category.Table 15 shows that the intervention using snakes and ladders media is more effective than using leaflet media. This is in line with several previous studies, which show that snakes and ladders media are more effective in increasing knowledge and attitudes. Researchers are interested in using media in this research because media is a tool that can be used in intervention activities so that it facilitates communication between researchers and the audience which makes communication effective so that the message to be conveyed can be captured by the audience. The effectiveness of conveying information is influenced by the use of media. When studying, media is needed that can help increase attention and the learning atmosphere (Haji Hamzah B Uno & Fatna Yustianti, 2007) Teenagers will not feel bored, helps the educational process so that it can be captured by the five senses. and the message will be conveyed optimally if

they use interesting media. Media helps the educational process so that it can be captured by the five senses. The more 2019).s are used, the clearer the knowledge is obtained (Lisanda Putri et al., 2019)

Information can also be conveyed using game media. One of them is the snakes-and-ladders game. Through playing snakes and ladders, students will learn about health science by playing while learning (Notoatmodjo, 2010; Zamzami, 2014: 2). Nugroho (2013), Muliawan (2016:205), and Mulyani (2013:121) say that snakes and ladders can increase creativity by 74.50%, increase motivation, imagination, innovation, and memory, train cooperation, and are a simple learning medium. It can be concluded that the three researchers stated that snakes and ladders are an effective and efficient medium for learning. Snakes and ladders have advantages, namely being able to increase the enthusiasm and motivation of students and foster a social feeling in which there will be cooperation between groups. Therefore, researchers are trying to develop a product that is used for the service delivery process with the aim of increasing students' knowledge regarding detection. early stunting, and this medium can help develop students' potential optimally even by playing (Neneng, 2022).

CONCLUSION

Based on the research that has been produced, the following conclusions are obtained:

1. Respondents who participated in the research had age characteristics, namely the age column in the leaflet group showed that 40.0% were 16 years old and 60.0% were 17 years old. Meanwhile, in the snakes and ladders group, 54.3% were 16 years old, 40.0% were 17 years old, and 5.7% were 18 years old. The gender in the two sample groups is female.
2. The knowledge score of respondents who received intervention using leaflet media increased from an average of 9.66 with the lowest score of 5 and the highest score of 14, to an average of 18.17 with a score of 14 and the highest score of 23.
3. The attitude scores of respondents who received intervention using leaflet media increased on average from 28.29, with the lowest score being 25 and the highest score being 31, to an average of 31.37, with the highest score being 34 and the lowest score being 28.
4. The knowledge value of respondents who received intervention using snakes and ladders media ranges from an average knowledge of 8.97 with the lowest value of 4 and the highest value of 13 to the lowest value of 15 and the highest value of 23 with an average of 19.37.
5. The attitude scores of respondents who received intervention using snakes and ladders increased from an average of 22.17 with the lowest score of 17 and the highest score of 26 to an average of 31.51 with the lowest score of 28 and the highest score of 34.

6. The results of statistical tests for the knowledge and attitude values that received intervention using leaflet media and snakes and ladders media obtained P = 0.000, which shows that there is an influence of intervention using these two media.

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