

## **The Effect Of Education Game Of Ladder And Flashcard Media To Improve Reproduction Knowledge In Early Adolescents**

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### **ABSTRACT**

Snakes and ladders media game is a learning media for students by learning while playing, where the game is light, simple, entertaining, and very interactive when played together. Snakes and ladders media game that contains knowledge about reproduction is able to make students to more understand the material provided because students will feel relaxed, comfortable, and not saturated in learning because it is packaged in a unique game and of course has often been played since childhood. This study aims to determine the effect of educational games media snakes and ladders flashcards to improve reproductive knowledge in early adolescents. This study uses a Quasi Experiment Design research design with a Pre test approach- Post test control group design. The number of samples in this study were 38 respondents consisting of 19 interventions and 19 controls. The sampling technique uses purposive sampling. The data collection tool uses a knowledge questionnaire of 15 questions. Data analysis uses the Wilcoxon Test statistic. The results of the study for the intervention group obtained values ( $p = 0,000$ ) or  $p < 0.05$  and for the control group obtained values ( $p = 0.001$ ) or  $p < 0.05$ . So, the effect of snake ladder educational game media and flashcard between the intervention group and the control group were equally influential, however, the intervention group had a more significant influence compared to the control group. The researcher suggests that in future studies to conduct research with a larger sample size.

**Keywords:** Snakes and Ladders Game, Flashcard, Knowledge, Reproduction

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## INTRODUCTION

Adolescence is a period of rapid growth and development both physically, psychologically, and intellectually. In general, the criteria for adolescents are grouped into three groups, namely: early adolescents aged 10-14 years, middle adolescents aged 15-18 years, and late adolescents aged 19-24 years. Adolescence is also known as the *strum und drang*, which is a trial or transition period. At this time, the character of a teenager has a great sense of curiosity, likes adventure and challenges and tends to dare to bear the risk of his actions without being preceded by a mature consideration (Irianti, 2010) .

In adolescence many significant changes occur both physically, biologically, mentally and psychosocial. This can affect life and personal behavior, family environment and society. The unpreparedness of adolescents to deal with these changes will lead to various behaviors such as juvenile delinquency, drug abuse, as well as adolescent problems related to reproductive health often stem from a lack of information, understanding and awareness to achieve reproductive health. There are so many things related to this, ranging from understanding the need to maintain cleanliness of the reproductive organs, understanding of reproductive processes and the impact of irresponsible behavior such as unwanted pregnancy, abortion, transmission of sexually transmitted diseases including HIV. To prevent all of that, it is necessary to have the role of parents, formal education and a social environment which is expected to have an influence on adolescents (Miswanto, 2014) .

Sexual and reproductive health problems experienced by adolescents are very alarming. Judging from data from the *World Health Organization* (WHO) it is estimated that every year there are 15 million adolescents experiencing pregnancy and 60% of them are unwanted pregnancies. Based on the results of a survey conducted by the *United Nations Childrens Fund* (UNICEF) there are as many as 15-20% of abortion cases in Indonesia in 2.3 million per year which are carried out by adolescents. From the survey data of the National Commission for Child Protection (KNPA) in 33 provinces in Indonesia in 2008 there were 62.7% of junior high school students who were not virgins and 21.2% claimed to have had an abortion (BKKBN, 2006) .

The 2012 Demographic and Health Survey (SDKI) shows that adolescent knowledge about reproductive health is inadequate. Only 35.3% of female adolescents and 31.2% of male adolescents aged 15-19 know that with one sexual intercourse women can get pregnant. As many as 41.2% of women and 55.3% of men aged 15-19 know that transmission of HIV / AIDS can be reduced if they have sex only with someone who does not have another partner. 46% of women and 60.8% of men aged 15-19 know that HIV / AIDS transmission can be reduced by using condoms. Only 9.9% of women and 10.6% of men aged 15-19 years have comprehensive knowledge about HIV / AIDS (Ministry of Health, 2013).

The 2007 IDHS results in South Sulawesi showed that 48% of women and 57.1% of men had heard of AIDS. The level of knowledge on how to reduce the risk of infection is generally low. This is indicated by the fact that 32% of women and 42.7% of men know that limiting sex with only one uninfected partner is a way to reduce the risk of transmission, 28.4% of women and 43.3% agree that not having sex will reduce the chance of infection and 27.5% of women and 40.5% of men said that regular use of condoms would reduce the chance of infection. Based on the results of Basic Health Research (Riskesdas) in 2010 in South Sulawesi Province the prevalence of population aged 15-24 years who had heard information about HIV / AIDS was 71.8% male and 72.5% female, while the prevalence of population

with age group the same who have comprehensive knowledge about HIV / AIDS are 16.5% men and 16.4% women (Health Office, 2015).

Based on the data and conditions of these adolescents, it shows that the number of Indonesian adolescents experiencing problems related to reproductive health and sexual behavior will disrupt the achievement of adolescent development. The limited knowledge of adolescents about reproductive health makes curiosity even higher and makes curiosity even higher including those related to sexuality issues and the unavailability of accurate and correct information about reproductive health will force adolescents to seek access and explore on their own .

The effort needed to improve reproductive health knowledge is through health education. WHO in 2014 emphasized the importance of reproductive health education to young adolescents ( *younger adolescents* ), namely groups of children aged 10-19 years. This age is a golden period for the establishment of a strong foundation on reproductive health, so that it can prepare children to make safer and wiser sexual decisions in their lives (Ministry of Health, 2015).

The importance of providing reproductive health education to children as early as possible to prevent crime and sexual abuse in children is increasingly widespread, the age of puberty in children is also known to accelerate from year to year. The rise of violence and sexual abuse of children is one result of the lack of knowledge provision related to reproductive health in children and adolescents. The swift flow of information that is increasingly open with the use of uncontrolled gadgets also gives children access to various information relating to reproductive health and sexuality whose truth is uncertain (Rahmaniah, 2014) .

Based on the data and information in the explanation above about adolescent knowledge that is still lacking about the systems, processes, and functions of reproductive organs, also considering that the flow of science and technology is increasingly rampant and completely transparent and it is not accompanied by ethical, moral, moral values and religion to students, this will have a major impact and damage the next generation. Researchers want to examine the effect of educational games for snakes and ladders to increase knowledge of reproduction in early adolescents.

Snakes and ladders media game that contains knowledge about reproduction is able to make students to better understand the material provided because students will feel relaxed, comfortable and not saturated in learning because it is packed with a unique game and of course has often been played since childhood . Snakes and ladders game media is an educational media that can function in increasing knowledge. This is supported by the results of a study conducted by Syamsul Maarif in 2017 entitled the effect of reproductive health education with snake ladder media on the knowledge and attitudes of junior high school students in Selo Boyolali, as evidenced by increased student knowledge about reproductive health due to students' interest and enthusiasm in learning . However, in this study, there are innovative methods of playing snakes and ladders with the addition of a flashcard. This method teaches students about health science by playing while learning.

## METHODS

This type of research is a quasi-experimental study with the approach of *pre-test and post-test with control group design* that is a study that grouped members of the intervention group and

the control group then conducted a *pre-test and post-test* in both groups. Pengukuran performed before and after a given intervention is given kintervensi.

The population in this study were all grade VII students of Guppi Islamic Boarding School. The sample in this study was 38 students consisting of 19 people for the intervention group and 19 people for the control group.

## RESULTS

This research was conducted on March 1-7, 2019. With a total sample of 38 people consisting of an intervention group of 19 people and a control group of 19 people. The researcher first distributes the *informed consent* form to the respondent as a form of agreement to become a respondent in the study, then the researcher distributes a reproduction knowledge questionnaire consisting of 15 questions. Researchers distribute the questionnaire *pretest* to each group, and then given treatment week 4 times in a row for the last two groups and distribute the questionnaire *P osttest*.

### Characteristics of Class VII Students of Guppi Islamic Boarding Schools

Table 4.1 Frequency and Percentage Distribution Based on Characteristics of Respondent Demographic Data

No	Characteristics		Intervention Group		Control group	
			n	%	n	%
1	Age	11 years old	2	10.5	0	0
		12 years old	5	26.3	8	42.1
		13 years old	10	52,6	4	21.1
		14 years	2	10.5	7	36.8
2	Gender	Male	13	68.4	14	73.7
		Female	6	31.6	5	26.3
3	Suku	Makassar	15	78.9	17	89.5
		Bugis	4	21.1	2	10.5
		<b>Total</b>	<b>19</b>	<b>100</b>	<b>19</b>	<b>100</b>

Source: Primary Data, 2019

Based on the results of the study it was found for the intervention group, the frequency distribution of respondents by age was mostly 10-year-old adolescents by 10 people (52.6%), while the control group was mostly 12-year-old adolescents by 8 people (42.1%). As for the intervention group the frequency distribution of respondents by sex is the majority of male teenagers as many as 13 people (68.4%), while for the control group the majority of male teenagers are as many as 14 people (73.7%). As for the intervention group the frequency distribution of respondents based on ethnicity is the majority of Makassar-level adolescents as many as 15 people (78.9%), while for the control group the majority of Makassar-ethnic adolescents are 17 people (89.5%).

**Univariate Analysis**

Table 4.2 Frequency Distribution of Pre Test Knowledge Level in the Intervention and Control Groups at Guppi Islamic Boarding Schools

Category	Intervention Group		Control group	
	Frequency	Percentage	Frequency	Percentage
Well	0	0	1	5,3
Enough	3	15.8	3	15.8
Less	16	84.2	15	78.9
<b>Total</b>	<b>19</b>	<b>100</b>	<b>19</b>	<b>100</b>

*Source: Primary Data, 2019*

Based on the results of the study showed that in the intervention group, most students have a level of lack of reproductive knowledge where respondents who have less knowledge level are 16 people (84.2%), respondents who have sufficient level of knowledge are as many as 3 people (15.8% ), and there are no respondents who have a good level of knowledge.

In the control group, the majority of respondents also had a low level of knowledge. This is indicated by the data that have a low level of knowledge as many as 15 people (78.9%) and respondents who have a sufficient level of knowledge are as many as 3 people (15.8%), and respondents who have a good level of knowledge are as many as 1 person (5.3%).

Table 4.3 Frequency Distribution of Post Test Knowledge Levels in the Intervention and Control Groups at Guppi Islamic Boarding Schools

Category	Intervention Group		Control group	
	Frequency	Percentage	Frequency	Percentage
Well	15	78.9	3	15.8
Enough	4	21.1	11	57.9
Less	0	0	5	26.3
<b>Total</b>	<b>19</b>	<b>100</b>	<b>19</b>	<b>100</b>

*Source: Primary Data, 2019*

Based on the results of the study table showed that in the intervention group, no one has a level of lack of knowledge, respondents who have enough knowledge are as many as 4 people (21.1%), and respondents who have a good level of knowledge as many as 15 people (78.9%) . As for the control group, respondents who have less knowledge level are 5 people (26.3%) and respondents who have a sufficient level of knowledge are 11 people (57.9%), and respondents who have a good level of knowledge are 3 people (15 , 8%).

**Bivariate Analysis**

Table 4.4

Normality Test Results for Early Adolescent Reproductive Knowledge

Group	Shapiro-Wilk
Pre Test Intervention Knowledge Level	<b>0,000</b>
Post Test Intervention Knowledge Level	<b>0,000</b>
Pre Test Control Knowledge Level	<b>0,000</b>
Post Test Control Knowledge Level	<b>.001</b>

*Source: Primary Data, 2019*

Table 4.5

### Comparison of Pre-Test and Post-Test Reproductive Knowledge Level Results in the Intervention and Control Groups (Wilcoxon Test)

Knowledge level		Median	Min	Max	Value of <i>p</i>
Intervention	Pre Test	3	2	3	<b>0,000</b>
	Post Test	1	1	2	
Control	Pre Test	3	1	3	<b>.001</b>
	Post Test	2	1	3	

Source: Primary Data, 2019

Based on statistical tests using the Wilcoxon test in the pretest and posttest intervention groups, the p-value is 0,000 or  $p < 0.05$  so it can be concluded that there is a significant influence on the educational game of ladder snakes and flashcards to increase knowledge of reproduction, whereas in the control group obtained a p-value of 0.001 or  $p < 0.05$ , it can be concluded that there was an influence of giving media leaflets on the reproductive knowledge of early adolescents. So, the effect of snake ladder educational game media and flashcard between the intervention group and the control group were equally influential, however, the intervention group had a more significant effect than the control group.

## DISCUSSION

### Characteristics of Respondents

The results of the study conducted on 38 respondents obtained the results of the age range of respondents for the Intervention group at Guppi Islamic Boarding School that is 11-14 years old, with the most distribution at the age of 13 years, as many as 10 people (52.6%), while for the 12 year old control group as many as 8 people (42.1%). According to Notoatmodjo (2010), school children are a group that is very sensitive to accept changes, especially aged 6-18 years. The results of this study are in line with research conducted by Syamsul Maarif in 2017 with the title influence of reproductive health education with snakes and ladders media games on the knowledge and attitudes of junior high school students in Selo Boyolali. The results of the study stated that the majority of respondents had the age of 13 years.

The results of the study illustrate the distribution of sex differences for the intervention group of respondents namely 13 men (68.4%) and 6 women (31.6%), while for the control group of respondents namely 14 men (73.7) and 5 women (26.3%). This study found that the dominant respondents were male.

### Student knowledge before and after the intervention is given

The results showed that the intervention group gained a significant increase in knowledge after being given the educational game of ladder snakes and flashcards, where the *pretest* categories were 0 respondents (0%) and *posttest* to 15 respondents (78.9%). *Pretest* for category enough shows as many as 3 respondents (15.8%) and for *posttest* being 4 respondents (21.1%), while *pretest* for category less shows as many as 16 respondents (84.2%) and for *posttest* being 0 respondents (0 %). So, it can be concluded that



the educational game of snakes and ladders media can increase reproductive knowledge in early adolescents.

Based on the results of the analysis conducted by researchers, the results show that more respondents do not know about reproductive knowledge than do they already know, this means that there are still many respondents who did not know about reproductive knowledge and never received information about anything. included in the knowledge of reproduction both from print media, social media and other information.

This is in accordance with the theory of Notoatmodjo (2010) which says that giving information has meaning as notification or knowledge to someone. Providing information about a matter will provide a sufficient cognitive foundation and new knowledge for the respondent and can increase the respondent's knowledge. This is also in line with the opinion of researchers because more respondents have never gained knowledge about reproduction so that it will affect students' knowledge, where the results of the study indicate that there are no respondents who have good knowledge categories.

This is in line with research conducted by (Syamsul Maarif, 2017) with the title research on the influence of reproductive health education with snake ladder media on the knowledge and attitudes of junior high school students in Selo Boyolali, found that the average score of knowledge after being given education with snake ladder media increased from 9.40% to 12.84%.

Based on the results of the control group research, it was shown that after being given the leaflet media, knowledge of *pretest* category was 1 respondent (5.3%) and *posttest* was 3 respondents (15.8%). *Pretest* for category enough shows as many as 3 respondents (15.8%) and for *posttest* being 11 respondents (57.9%), while *pretest* for category less shows as many as 15 respondents (78.9%) and for *posttest* being 5 respondents (26, 3%).

The results of the study are in line with research conducted by Belia Dwi Hapsari Nugraheni (2016) with the title the effect of giving leaflets and an explanation of maternal knowledge about hyperbilirubinemia neonatorum, where the results show that at *pretest* 5.82% and after given leaflet intervention resulting in an increase in knowledge to 14 % In line with research conducted by Nur Syamsiyah (2013) entitled the influence of leaflet media on changes in knowledge and intensity of exclusive breastfeeding for pregnant women in the Puskesmas Area of Pasanggrahan Sub-district, South Jakarta, the results of the study showed a difference in the average *pretest* knowledge score of 64.63 % and *posttest* 77.9%.

Notoatmodjo (2010), said that the more information obtained, it will influence or increase knowledge for someone. Thus, knowledge can lead to awareness of someone and eventually will act in accordance with the knowledge they have.

### **The influence of the educational game of snakes and ladders media to increase flashcards**

#### **knowledge of reproduction in early adolescents**

The results of the data analysis of the intervention group showed that there was a significant influence on the educational game of snakes and flashcards media to increase reproductive knowledge in early adolescents at Guppi Islamic Boarding School with a value ( $p = 0,000$ ) or  $p < 0.05$ . This shows that there is a significant influence on the educational game of snake ladder media and flashcards to increase reproduction knowledge at Guppi Islamic Boarding School.

The educational game of ladder snakes and flashcards in this study was done by playing ladder snakes accompanied by flashcards related to reproductive knowledge, including differences in male and female reproductive organs; efforts to maintain reproductive health; adolescent development; puberty and risky sexual behavior. Besides that, the researcher explained the contents of the flashcard so that the information obtained by respondents was more optimal. When this game was done, although there were some who did not pay attention but most respondents were enthusiastic to try to play and answer the questions available on the flashcard.

Based on the analysis of researchers, educational game media snakes and ladders flashcards are effective in increasing student knowledge, where a student can receive messages quickly and easily remembered and can be well received, more interesting, not boring and not monotonous because students can play while learning so students very enthusiastic about this game and finish it to the end. Through this game, students will explain clearly about anything related to reproductive knowledge.

This is supported by the research of Alikta Hasnah Safitri (2016) which says that the snake ladder game media is chosen because in general, games used in learning have benefits in student development. Snakes and ladders media game is a type of visual media because it consists of a variety of images that can be seen, where a person gets knowledge through vision that is equal to 83% and this game media can improve the quality of student learning in physical-motoric, language, intellectual, moral, social, and emotionally.

In line with research conducted by Afif Hamdalah (2011) with the title differences in the effectiveness of the lecture method with pictorial story media and lectures with snake ladder media in improving knowledge, attitudes, and oral and dental health practices, that there is a significant increase in knowledge effect  $p = 0.001$  or  $p < 0.05$ . In line with research conducted by Ni Made Swasti Wulanyani (2013) with the title increasing health knowledge through snakes and ladders, with a significant value of  $p = 0.001$  or  $p < 0.05$  in other words that there is a significant influence of increased knowledge through snakes and ladders. In line with research conducted by Syamsul Maarif (2017) with the title research on the influence of reproductive health education with snakes and ladders game media on the knowledge and attitudes of junior high school students in Selo Boyolali, the results of the study found that there was an influence on reproductive health education with snakes and ladders playing game  $= 0.004$  or  $p = 0.05$ .

The results of the analysis of the control group using leaflets found a significant value ( $p = 0.001$ ) or  $p < 0.05$  which means that there is an influence of the media leaflet to increase reproductive knowledge in Guppi Islamic Boarding School. In line with research conducted by Tofa Hariyatmoko (2012) with the title influence of reproductive health education with lecture and leaflet methods on knowledge of adolescents in Madratsah Aliyah Yapim Ngeluk Penawangan Grobogan Regency, with a significant value of  $p = 0.006$  or  $p < 0.05$ . So, it can be concluded that there is an influence of media leaflets on increasing knowledge.

Notoatmodjo (2010), said that someone who behaves must first know what the meaning or benefit of the behavior for himself or others. Knowledge is the result of knowing and this happens after people have sensed a certain object. Knowledge or cognitive is a very important domain in shaping one's actions.



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**CONCLUSION**

- 1) The results of the study based on the characteristics of male gender respondents are more dominant than women. Vulnerable age majority of respondents 13 years for intervention, while 12 years for control. Most respondents are from the Makassar tribe.
- 2) The results of knowledge research of pre test and post test of educational game of snakes and ladders media of snakes and there was a significant change before the educational game of snakes and ladders showed that pre-test categories of good 0 respondents (0%) and post-test increased to 15 respondents ( 78.9%). For the category, it was enough to show that the pre-test was 3 respondents (15.8%) and the post-test increased to 4 respondents (21.1%), while for the lack of pre-test knowledge category there were 16 respondents (84.2%) and post test 0 respondents (0%).
- 3) Wilcoxon test results show that there is a significant change between the knowledge of reproduction of pre-test and post-test of educational games of snake ladder media and flashcards, in the intervention group significant values were obtained ( $p = 0,000$ ) or  $p < 0.05$ .
- 4) The results showed that there were significant differences in reproduction knowledge before being given the educational game of ladder snakes and flashcards with reproductive knowledge after being given the educational game of ladder snakes and flashcards.

**Implications****1) For Science**

This research is expected to be a reference for science and increase student knowledge about reproduction so students are ready to face this method if applied.

**2) For Institutions**

The results of this study become one of the considerations for the policy holders at FKIK UIN Alauddin Makassar to immediately implement the educational game method of snake ladder media and flashcard in an effort not to give boredom and be more relaxed in learning.

**3) For Researchers**

This research is expected to be able to provide experience to the authors and add insight into educational play methods.

**4) For the Community**

This research can be new information for the public about the existence of a learning model of the educational game of snakes and ladders media that can be useful for improving the quality of student learning.

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