

**THE EFFECT OF GIVING FLASHCARDS MEDIA ABOUT CHANGES IN
PUBERTY ON THE KNOWLEDGE OF ADOLESCENT GIRLS IN SMP
NEGERI 01
KARANGPANDAN**

Nimas Galuh Ajeng Pawiling¹⁾, Wijayanti²⁾, Yunia Renny A³⁾

^{1,2,3} Universitas Kusuma Husada Surakarta

nimasgaluhap95@gmail.com

Article Info

Corresponding Author:

Nimas Galuh Ajeng Pawiling
Kusuma Husada Surakarta
Email: *nimasgaluhap95@gmail.com*

ABSTRACT

Based on the 2010 Population Census, the number of adolescents 10-19 years old in Indonesia reached 43.5 million, about 18% of the world population. The Indonesian Adolescent Reproductive Health Survey shows that adolescents' knowledge of reproductive health is still low, knowledge is the understanding and ability to apply information. Flashcard media, as a development of learning media, can improve knowledge. This study aims to analyse the effect of using flashcard media about puberty changes on the knowledge of adolescent girls at SMP Negeri 1 Karangpandan. This research used pre-experimental method with Pretest-posttest with control group design. The population in this study amounted to 332 people, namely all female students in 2024 at SMP Negeri 1 Karangpandan. With a sample size of 80 female students consisting of 40 control group students and 40 treatment groups. This study used random sampling technique. The instrument used was a questionnaire.

The results of the Wilcoxon test showed that the *asympt.sig* in the control and treatment groups was 0.001, (<0.05), so it was concluded that there was a significant difference between the pretest and posttest values in both groups. And the results of the Mann-Whitney test showed an *asympt.sig* value of 0.001 (<0.05), so the alternative hypothesis (*H_a*) was accepted, which means that there is an effect of flashcard media on the knowledge of adolescent girls about puberty changes at SMP Negeri 1 Karangpandan.

Keywords:

knowledge, flashcards, adolescents, puberty

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1. INTRODUCTION

Adolescents according to WHO are in the age range of 10-19 years, while the regulation of the Minister of Health of the Republic of Indonesia Number 25 Year 2014 defines adolescents as 10-18 years old, and BKKBN mentions adolescents 10-24 years old who are not married[1]. Based on the 2021 Population Census, the total population of Indonesia aged 10 to 19 years is around 44,197,600 people [2].

Adolescents aged 10 to 19 have the potential to be a driving force for development if provided with knowledge and opportunities to grow. However, the main challenge lies in reproductive health and teenage fertility issues, which negatively impact health, education, and the economy. Teenage pregnancies, especially those under 16, increase the risk of maternal death and hinder socio-economic development[2].

A study was conducted by Endang Susilowati (2023) with the aim of examining the influence of adolescent knowledge and parental role in providing information on reproductive health with adolescent attitudes toward reproductive health. The results showed that 76.7% of respondents practiced good reproductive health practices, and the level of knowledge influenced these practices with an analysis value of 0.041, while access to information had a value of 0.046. It was concluded that there is an influence between knowledge and access to information on reproductive health practices [3].

Understanding physical changes is also important to provide to adolescents so that they can have good and positive knowledge [4]. Understanding the changes experienced by adolescents in various aspects of their lives is important as it helps them navigate physical, emotional, social, and cognitive transformations. This knowledge allows them to make informed decisions, adapt to new experiences, and develop a positive attitude toward their growth and well-being [5].

Knowledge is the result of a person's sensing process after sensing a certain object [6]. Most human knowledge is obtained through the eyes and ears [7]. One of the main challenges faced by young people is the lack of knowledge about the actions needed to deal with the changes they experience, especially related to knowledge about puberty and their views on this phenomenon [8].

The results showed a relationship between adolescents' knowledge about puberty and how they deal with physical changes. The results showed that the way adolescents deal with physical changes that occur during puberty is influenced by the level of knowledge they have about it [9]. Without sufficient understanding, adolescents risk feeling anxious, confused or embarrassed, which can impact their mental and emotional health. Therefore, proper education about puberty is essential to help adolescents adapt to these changes.

Research conducted by M. Ilham stated that flashcard media affects the level of knowledge of adolescents about the dangers of smoking [10]. Flash cards are a type of visual-based learning media in the form of images [11]. Flashcard media has various advantages, including relatively cheap materials, easy to find in the surrounding environment, and easy to prepare and use.

2. METODE

The type of research in this study is a pre-experimental design method with a Pretest-posttest with control group design approach [12]. Conducted in two control and treatment groups. The population in this study amounted to 332 people, namely all female students in 2024 at SMP Negri 1 Karangpandan, with a sample size of 80 students divided into 2 groups (40 control and 40 treatment). This research was conducted in August 2024- January 2025. This research instrument uses a questionnaire with 20 questions that have been tested for validity and reliability. The independent variable in this study is flashcard media about changes in puberty. The dependent variable in this study is the level of knowledge of teenage girls about puberty.

Data collection was carried out by dividing the respondents into two groups. Namely the control group (material with conventional or power point tamplate) and treatment (flashcard media). Research data were obtained by distributing questionnaires to respondents in the form of pretest and posttest in each group. The data obtained were subjected to univariate and bivariate analysis tests. The tests carried out include data normality test, Wilcoxon test then continued the mean Whietney test and homogeneity test for both groups.

3. RESULT

3.1. Respondents' Knowledge Level Before Being Given Flashcards

Table 1 Distribution Of Knowledge Levels Before Being Given Flashcards In The Control And Treatment Groups

Knowledge	Control		Treatment	
	Frequency	Percent %	Frequency	Percent %
Less	30	75,0	25	62,5
Fair	9	22,5	14	35,0
Good	1	2,5	1	2,5
Total	40	100,0	40	100,0

Data source: Primary data

The distribution of the level of knowledge before being given a flashcard in the control group the majority was less as many as 30 people (75%) while in the treatment group the majority was less as many as 25 people (62.5%).

3.2. Respondents' Knowledge Level After Being Given Flashcards

Table 2 Distribution Of Knowledge Levels After Being Given Flashcards
 In The Control And Treatment Groups

Knowledge	Control		Treatment	
	Frequency	Percent %	Frequency	Percent %
Less	29	72,5	0	0
Fair	10	25,0	4	10,0
Good	1	2,5	36	90,0
Total	40	100,0	40	100,0

Data source: Primary data

The distribution of knowledge levels after being given education without flashcards in the control group the majority had a level of knowledge less as many as 29 people (72.5%), while in the treatment group given flashcard media the majority had a good level of knowledge as many as 36 people (90%).

3.3. Differences in Knowledge Level Before and After Giving Media Flashcards

Before assessing the effect of giving flashcards about changes in puberty on the knowledge of adolescent girls, a different test was carried out first, the results obtained were as in the following table

Table 3 Results of Values Before and After Giving Flashcard Media to
 Control and Treatment Groups

	Min	Max	Mean	differe nce	Std. Deviation
Control group					
Pretest Value	28	61	40.08	2.82	7.123
Posttest value	34	63	42.90		5.198
Treatment Group					
Pretest value	34	63	43.05	22.42	6.575
Posttest value	44	77	65.47		7.257

Data source: Primary data

Based on table 3, it is obtained that the control group has an average value at the pretest of 40.08 and the post test is 42.90 from the control group data there is an average increase of 2.82. while in the treatment group the pretest average value data is 43.05 and the post test is 65.47 there is an increase in the average value of 22.42.

Pretest and posttest data in the control group and treatment group have a sig value. 0.01 (<0.05), which means that the data from both groups are not normally distributed.

3.4. Table 4 Differences in Knowledge Level Before and After Giving Flashcard Media

	Mean	Std. Deviation	Asym.sig
Control group			
Pretest Value	40.08	7.123	0.001
Posttest value	42.90	5.198	
Treatment Group			
Pretest value	43.05	6.575	0.001
Nilai <i>Posttest</i>	65.47	7.257	

Data source: Primary data

Based on table 4, the results show that the asymp.sig value in the control group is 0.001, where the value is smaller than 0.05 so it is concluded that there is a difference between the pretest and post test values in the control group. As for the results of the treatment group, the asymp.sig value of 0.001 means less than 0.05, so in the treatment group there are also different results between the pretest and post test scores. So that there are differences in the knowledge of adolescent girls towards puberty with the use of flashcard media in the control and treatment groups.

In this study, to determine the effect of giving flashcards media about changes in puberty on the knowledge of adolescent girls, the Mann-Whitney U test was conducted..

Table 5 Effect Of Giving Flashcards Media About Changes In Puberty On The Knowledge Of Adolescent Girls

Learning Outcome	n	Mean Rank	Asym.sig
Control group	40	21.34	0.001
Treatment Group	40	59.66	

Data source: Primary data

Based on table 5 shows the results of the Mann-Whitney test obtained asymp.sig 0.001 <0.05 so that H_a in this study is accepted, which means that there is an effect of flashcard media on the knowledge of adolescent girls about puberty changes at SMP Negeri 1 Karangpandan.

4. DISCUSSION

4.1 Knowledge Level Of Adolescent Girls About Changes During Puberty

Knowledge is the result of knowing from humans and this occurs after people sensing the object of knowledge is also influenced by several factors, one of which is the media[13]. Media as a means of conveying information can affect the way a person understands information [14]. This is supported by the theory that defines learning media as everything that can be used to convey learning messages so that message recipients can receive and understand information better[14].

The media used in this study is flashcard media. It was used to 40 adolescent female respondents as the treatment group. Flashcard media was chosen in this study because this media is able to provide a fun approach for adolescents. This is in line with previous research which states that flash card media games are indeed very interesting and good media to be applied in learning, considering that flash card games have practical, economical, easy to carry, and fun advantages[15].

The selection of appropriate learning media in adolescents is very important to improve learning effectiveness. The use of flashcards provides an opportunity for respondents to be actively involved in the learning process, with the researcher's argument being able to provide appropriate knowledge related to changes in adolescent puberty.

4.2 Respondents' Knowledge Level After Being Given Flashcards

The results showed that the knowledge of adolescent girls after being given education without flashcards media in the control group, the majority had a poor level of knowledge as many as 29 people (72.5%). While in the treatment group given flashcard media the majority had a good level of knowledge as many as 36 people (90%).

This is in line with previous research which states that the provision of nutrition education using flashcard media can improve nutritional knowledge in Pontianak city junior high school students [16]. According to research conducted by Milenia Elen and Herdhianta (2022), it has been proven that increasing students' knowledge after attending health education has an impact on their understanding of menarche. Indeed, this new approach arouses curiosity among students which can be interpreted as a drive that influences their desire to do something [17].

The use of flashcard media in this study, designed attractively so that it can make respondents interested in playing and can increase knowledge. Given the target of this study is adolescence. The researcher assumes that the respondents' involvement in the learning process is very good. This is evident that the use of flashcards is able to provide an increase in respondents' knowledge as seen from the post-test scores given

4.3 Differences in the Level of Knowledge of Adolescent Girls about Changes in Puberty

The results of this study found that there were differences in the knowledge of adolescent girls towards puberty with the use of flashcard media in the control and treatment groups. This is obtained from the results of the Wilcoxon statistical test, namely the asym.sig value in the control group is 0.001 and the asym.sig value in the treatment group is 0.001 <0.05. So that in this study shows a significant difference in understanding the material changes at puberty. The results of the pre-test and post-test in each group were compared to see changes in knowledge levels and the results showed that there were differences in the knowledge level of respondents in the control and treatment groups.

This study is in line with research conducted by Anjana (2023) which shows a correlation between the use of flashcard media with changes in knowledge and attitudes [18]. Based on previous research, research conducted by Kusrini (2023) confirmed the impact of flashcard media on the knowledge and attitudes of SMPN 21 Rejang Lebong Regency students regarding Sexual Behaviour in Maturation of Marriage Age (PUP) [19].

Puberty is an important transitional period in adolescent life characterised by physical, psychological and social changes[1]. The findings during the study were that before being given education about puberty, adolescent girls did not fully understand the physical changes that occurred in their bodies. Some adolescents felt worried about physical changes, such as breast growth, body shape changes, and menstruation. The researcher argued that this limited knowledge is often caused by the lack of information they receive, whether from parents, schools, or other sources. So it is necessary to provide health education to provide accurate information.

Information can be delivered using educational media Flashcard media, a form of media that uses photography as the main means of conveying information[20]. Good information will lead to knowledge transformation, where strong knowledge will have a positive impact and this is illustrated in the results of this study.

After testing the difference in pre-test and post-test results with the Wilcoxon test in the treatment and control groups, the Mann-Whitney test was conducted. This non-parametric statistical test is used to compare two groups that are not normally distributed, namely the treatment group and the control group.

The results of the Mann-Whitney test in this study obtained $asym.sig\ 0.001 < 0.05$ so it can be concluded that the hypothesis in this study is accepted, which means that there is an effect of flashcard media on the knowledge of adolescent girls about puberty changes at SMP Negeri 1 Karangpandan. Providing education using flashcard media is more influential than without using flashcard media. Thus, education about puberty using flashcards can increase adolescent girls' knowledge about changes in puberty, which in turn will reduce the fear, anxiety, or confusion that respondents experienced before being given education. Proper education will give adolescent girls the confidence to go through puberty with a better understanding.

The information provided in the flashcard media which is done by direct interaction such as with this game is made interesting and easy to understand for respondents. So that this flashcard media can be one of the visual media that can increase knowledge[16].

Flashcard media is a learning media that can increase adolescents' understanding, memory, and retention of what adolescents learn [14]. In this study, the researcher can see that the use of flashcards can increase the enthusiasm of adolescent girls during the research process, adolescents

look active and involved in trying to understand the material presented. Overall, this study emphasizes that flashcards are an effective learning tool to improve respondents' understanding and knowledge.

5. CONCLUSION

- a. Before flashcards were given, the majority of respondents in the control group (75%) and treatment group (62.5%) had a low level of knowledge, with a mean score of 40.08 for the control group and 43.05 for the treatment group.
- b. After flashcards, 90% of respondents in the treatment group had good knowledge, while 72.5% of respondents in the control group still had poor knowledge, with a mean score of 65.47 for the treatment group and 42.90 for the control group.
- c. The results of the Wilcoxon test showed an asymp.sig value of 0.001 in the control group and 0.001 in the treatment group, which was smaller than 0.05, so it was concluded that there was a significant difference between the pretest and posttest scores in both groups.
- d. The results of the Mann-Whitney test showed an asymp.sig value of 0.001 <0.05, which means there is an effect of flashcard media on the knowledge of adolescent girls about puberty changes at SMP Negeri 1 Karangpandan. The hypothesis in this study is accepted.

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