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THE IMPACT OF REPRODUCTIVE EDUCATION ON ADOLESCENT BEHAVIOR CHANGES IN PERSONAL HYGIENE DURING MENSTRUATION THROUGH ONLINE APPLICATION MEDIA

Lela Hartini*, Yuniarti, Eliana, Nispi Yulyana

Department of Midwifery, Poltekkes Kemenkes Bengkulu, Bengkulu, Indonesia

**lela_hartini@yahoo.com*

Abstract

The average age of first menstruation in Indonesia is 12 years (27.7%) (SDKI. R, 2017). The risk associated with poor menstrual hygiene is 1.66 times higher compared to those who maintain proper menstrual hygiene. This study aims to investigate the impact of reproductive health education on changes in adolescent behavior concerning personal hygiene during menstruation. The type of research used is a pre-experimental design with a quasi-experimental pretest and posttest design. The results of the study show that nearly half of the participants in the video media group are aged 11-13 years. The average knowledge score after the intervention was 8,85 with a standard deviation of 9. The average attitude score was 38,29 and the average behavior score was 35,35. In contrast, the average knowledge score for the module media group after the intervention was 7,71 with a standard deviation of 0,692. For the video the knowledge score yielded a Z value of -5.117 with a p-value of 0,000. There was a significant difference in the mean ranks of attitude and the module, as indicated by a p-value of 0.000, which is less than the α level of 0.05. Multivariate analysis of external variables related to the dependent variables, such as age and occupation, showed a p-value < 0.05. Analysis revealed a significant effect of the independent variables, with a significance p-value of 0.000. It is recommended to enhance the provision of information and services for students regarding adolescent behavior and personal hygiene menstruation.

Keywords: Video Media, Module, Personal Hygiene During Menstruation

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INTRODUCTION

Adolescents are a valuable asset for the nation's future development. Therefore, maintaining and improving adolescent health status is essential to produce a healthy, resilient, and productive generation capable of competing in the future. Adolescents represent the largest population segment

in Indonesia, with the number of individuals aged 10-24 reaching 64 million in 2007, or 28.64% of the total Indonesian population (Bonus, 2020).

Menstruation is associated with several misunderstandings regarding personal hygiene practices during menstruation, which can adversely affect the health of adolescent girls. Evidence shows that menstrual hygiene remains very low in developing countries. The impact of inadequate menstrual hygiene includes a 1.66 times higher risk of reproductive tract infections (RTIs) compared to those who maintain proper menstrual hygiene. RTIs include conditions such as vaginitis, trichomoniasis, leukorrhea, pediculosis, toxic shock syndrome (TSS), and candidiasis.

According to UNICEF (2015), the low level of healthcare workers providing information on menstrual hygiene is due to the suboptimal implementation of the GenRe program initiated by the government. Efforts to enhance students' knowledge about menstrual hygiene include health education, which is an effective method for disseminating information to adolescents. Other research results also state that menstrual problems are also influenced by lifestyle such as obesity, exercise, smoking, drinking alcohol, physical activity and stress (Akhila G, 2020).

Maintaining reproductive health is crucial, especially for adolescents. The adolescent years are an optimal time to establish good hygiene habits, which can serve as a long-term asset. One effective approach is practicing proper menstrual hygiene, which is essential for maintaining reproductive health (Lestari, 2014).

MATERIALS AND METHODS

The population for this study comprises all female students in grade VIII of junior high schools who have started menstruating. The sample includes all such female students in grade VIII at junior high schools in Bengkulu City, divided into two groups for the intervention.

The research design to be used in this study is a quasi-experimental pretest and posttest design. The study will utilize two subject groups: Intervention Group 1, which will use video media, and Intervention Group 2, which will use module media. Both groups will begin with a pretest, followed by the intervention, and will then undergo a posttest for measurement.

Ethical Approvals

Research ethics approval No. KEPK.BKL/102/3/2020.

RESULTS AND DISCUSSION

Univariate Analysis

Univariate analysis is conducted to obtain an overview of the characteristics, including age, occupation, parents' income and knowledge, attitudes, and behaviors of adolescents regarding personal hygiene during menstruation in Bengkulu City.

Table 1: Frequency Distribution of Age, Occupation, and Parental Income of Adolescents in Bengkulu City

Variable	Groups			
	Video (n=34)	%	Module (n=34)	%
Age				
<11 years old	9	26,5	5	14,7
11-13 years old	14	41,2	18	52,9
>13 years old	11	32,4	11	32,4
Occupatio				
Civil Servants	12	35,3	18	52,9
Private Sector	16	47,1	11	32,4
Fisherman	6	17,6	5	14,7
Income				
<Rp. 2.040.406	15	44,1	24	70,6
Rp. 2.040.406-Rp. 2.213.000	12	35,3	6	17,6
> Rp. 2.213.000	7	20,6	4	11,8

Based on Table 1, it can be observed that in the video media group, nearly half (41.2%) are aged 11-13 years, almost half of the parents' occupations (47.1%) are in the private sector, and a small proportion (44.1%) have an income of less than 2,040,406 IDR. In the module media group, more than half (52.9%) are aged 11-13 years, more than half of the parents' occupations (52.9%) are as civil servants (PNS), and the majority (70.6%) have an income of less than 2,040,406 IDR.

Table 2: Distribution of Knowledge, Attitudes, and Behaviors Before and After Receiving Education Through Video and Modules Among Adolescents in Bengkulu City

Variable	Video Meedia Group (N=34)									
	Min	Max	Mean	Median	SD	Min	Max	Mean	Media	SD
Knowledge										
- Before	0	4	2	2	1,303	1	3	1,85	2	0,821
- After	8	10	8,85	9	0,610	7	9	7,71	8	0,692
Attitudes										
- Before	10	19	12,71	12	2,802	16	23	19,26	20	1,615
- After	31	40	38,29	39,50	2,576	29	40	34,97	35	3,060
Behaviors										
- Before	11	18	14,03	13	1,784	13	18	14,29	14	1,661
- After	33	38	35,35	35	1,390	27	35	30,59	30	1,861

Based on the table 2, for the video media group, the average scores are as follows: the mean knowledge score after the intervention is 8.85 with a standard deviation of 9, the mean attitude score is 38.29 with a standard deviation of 2.576, and the mean behavior score is 35.35 with a standard deviation of 1.390. In contrast, for the module media group, the average scores are as follows: the mean knowledge score after the intervention is 7.71 with a standard deviation of 0.692, the mean attitude score is 34.97 with a standard deviation of 3.060, and the mean behavior score is 30.59 with a standard deviation of 1.861.

Bivariate Analysis

The results of the analysis are presented in the following table 3.

Table 3: Knowledge, Attitudes, and Behaviors Before and After Intervention in the Video Media and Module Media Groups Among Adolescents in Bengkulu City

Variable	Video Meedia Group (N=34)							
	Mean	SD	Z	P Value	Mean	SD	Z	P Value
Knowledge								
- Before	2	1,303	-	0,000	1,85	0,821	-5,145	0,000
- After	8,85	0,610	5,117		7,71	0,629		
Attitudes								
- Before	12,71	2,802	-	0,000	19,24	1,615	-5,093	0,000
- After	38,29	2,576	5,101		34,97	3,060		
Behaviors								
- Before	14,03	1,784	-	0,000	14,29	1,661	-5,093	0,000
- After	35,35	1,390	5,105		30,59	1,861		

Based on the table above, for the knowledge variable in the Video Media Group, the Z value is -5.117 with a p-value of 0.000, which is less than 0.05, indicating a significant difference in knowledge before and after the intervention using video media. In the Module Media Group, the Z value is -5.145 with a p-value of 0.000, also less than 0.05, signifying a significant difference in knowledge before and after the intervention using module media. Similarly, for the attitude and behavior variables in both groups, the p-value is 0.000, which is less than 0.05, indicating a significant difference in attitude and behavior before and after the intervention.

Table 4: Knowledge, Attitudes, and Behaviors in the Video Media Group and Module Media Group Among Adolescents in Bengkulu City

Variable	**Metode**	**Mean Rank**	**P Value**
Knowledge	Video Media Intervention	41.91	0.002
	Module Media Intervention	27.09	
Attitude	Video Media Intervention	49.34	0.000
	Module Media Intervention	19.66	
Behavior	Video Media Intervention	48.24	0.000
	Module Media Intervention	20.76	

Based on the table 4, for the knowledge variable, there is a difference between the Video Media Group with a mean rank of 41.91 and the Module Media Group with a mean rank of 27.09. The statistical test results show that p-value = 0.002 < α value = 0.05, indicating a significant difference between the two groups. Similarly, for the attitude and behavior variables, there is a difference in mean ranks, with the Video Media Group having a higher mean rank compared to the Module Media Group. The p-value is 0.000, which is less than 0.05, indicating a significant difference between the two groups.

Table 5: The Correlation Between Respondent Characteristics and Knowledge, Attitudes, and Behaviors Among Adolescents in Bengkulu City

Dependent Variable	Independent Variable		
	Knowledge	Attitude	Behaviour
Age	*P Value :* 0.620	*P Value :* 0.011	*P Value :* 0.256
Occupation	*P Value :* 0.092	*P Value :* 0.034	*P Value :* 0.112
Income	*P Value :* 0.228	*P Value :* 0.080	*P Value :* 0.089

Based on Table 5, it can be observed that the external variables related to the dependent variable are age and occupation, with a p-value < 0.05. Therefore, age and occupation are included in the multivariate analysis.

The Impact of Intervention Through Video and Module Media on Improving Adolescents' Knowledge, Attitudes, and Behaviors Regarding Personal Hygiene During Menstruation.

Table 6: Knowledge, Attitudes, and Behaviors Before and After Intervention in the Video Media and Module Media Groups Among Adolescents in Bengkulu City

Independent Variable	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig
Video and Module Media Interventions	Knowledge	10.903	1	10.903	7.415	.008
	Attitude	1361.916	1	1361.916	77.714	.000
	Behaviour	369.706	1	369.706	50.255	.000

From the results of the MANCOVA test, it was found that there is a significant effect of the independent variable, namely the intervention using video and module media, on adolescents' knowledge, attitudes, and behaviors regarding personal hygiene. This is evidenced by a p-value of 0.000, which is less than the significance level of α = 0.05 at a 95% confidence level. In contrast, the

covariates (age, occupation, and family income) do not affect knowledge, attitudes, and behaviors, as indicated by p-values greater than $\alpha = 0.05$.

DISCUSSION

This section may each be divided by subheadings or may be combined. A combined Results and Discussion section is often appropriate. This should explore the significance of the results of the work, don't repeat them. Avoid extensive citations and discussion of published literature only, instead discuss recent literature for comparing your work to highlight novelty of the work in view of recent development and challenges in the field.

Based on the research conducted on junior high school girls in Bengkulu City, it was found that the average age of menarche is between 11 and 13 years. This is likely because the age range of 11 to 13 years marks the beginning of reproductive system functioning in adolescents. The age of menarche can be associated with socioeconomic status. Family income is often linked to the ability to meet nutritional needs, which in turn affects sexual maturation in adolescents. Therefore, families with higher income levels typically provide better nutritional status, which correlates with earlier menarche in girls.

Menarche is defined as the onset of menstruation or the first menstrual period experienced by a woman as she transitions into adulthood (Prawirohardjo, 2014). According to the Indonesian Ministry of Health (2018), the average age of menarche in Indonesia is 12.4 years, with a prevalence of 60%. Menarche occurs at ages 9-10 years in 2.6% of cases, at ages 11-12 years in 30.3% of cases, and at age 13 in 30% of cases.

A small proportion of respondents experienced menarche at an age younger than 11 years, which aligns with the theory that menarche age can be influenced by economic or nutritional factors. If a family has a good income, the adolescent's nutrition is likely to be better, which can be associated with sexual maturation. Consequently, families with higher income levels are likely to positively affect the nutritional status of adolescents, thereby influencing the onset of menarche. Children born and raised in environments with higher socioeconomic status are generally better able to meet their nutritional needs compared to those born and raised in lower socioeconomic conditions (Atika & Rasyid, 2018).

Nutritional intake, influenced by parental income, plays a significant role in hormone development, which in turn affects the timing of menarche. Adequate nutrition can accelerate the production of hormones responsible for the onset of menarche. The diet of adolescent girls impacts their growth and fertility. Girls who experience menarche at a normal age tend to be heavier and taller compared

to their peers who have not yet menstruated, even if they are of the same age. Conversely, girls who experience menarche later often have lower body weight, although their height may be similar to those who experience menarche earlier. Thus, the nutritional intake of these girls affects their growth and fertility, influencing the timing of menarche.

From the research conducted on junior high school girls in Bengkulu City, it was also found that there was an increase in the average scores across four measurements in each group before the intervention. The study utilized pre- and post-test questionnaires administered via Google Forms. Before the intervention, respondents were given a pre-test link. Following the intervention, which was carried out according to the research plan, a post-test was administered. The results showed an increase in the average scores for each variable knowledge, attitudes, and behaviors among respondents who were exposed to the video and module media interventions.

This aligns with the theory that subjects have adapted their behavior in response to their knowledge, awareness, and attitudes toward the stimulus (Adaptation). Knowledge is a crucial factor influencing an individual's behavior. In making decisions, people are more likely to choose actions they are familiar with rather than those they are not. Information is essential; a lack of information about personal hygiene can lead respondents to be unaware of proper reproductive health practices and potentially engage in incorrect behaviors. The more information a person has, the more considerations they can make when deciding on actions. (Villela, 2013). Lifestyle behavior, due to cultural norms, adolescent girls generally have negative attitudes and beliefs towards menstruation (Siabani, 2018).

The results of this study are consistent with the theory proposed by Yulaikhah, Arisdiani, & Widiaastuti (2017), which states that the level of knowledge affects personal hygiene practices. Individuals with a good level of knowledge about personal hygiene are more likely to engage in optimal self-care. According to Ristraningsih (2017), health education is a process aimed at bringing about changes in an individual's health-related knowledge and behaviors. It involves continuously monitoring and adapting to changes in the community, as well as raising awareness and encouraging community participation in health matters.

Health education delivered through video and module media has a significant impact on enhancing knowledge, changing attitudes, and modifying behaviors. When conveying messages through lectures, it is beneficial to support them with modules, allowing participants to review the material discussed during the lecture. Modules are advantageous because they are easy to store and read repeatedly, can reach a wide audience, and help individuals recall the content of the message more effectively.

Therefore, it is beneficial to use reproductive health education about menstruation through video and module media to ensure that changes in attitudes and behaviors are sustained over time. The research results also indicate that respondents' knowledge, attitudes, and behaviors improved more significantly after receiving health education through video media compared to using modules. Educational media can effectively convey information or messages that influence health education outcomes. Using media for health education on personal hygiene during menstruation is an alternative learning method that meets the needs of adolescent girls, optimizing their abilities, reasoning, and knowledge to enhance menstrual hygiene behaviors. This is supported by the theory that selecting and using appropriate media tools is crucial, as it aims to engage as many senses as possible. Knowledge acquisition primarily occurs through sensory experiences, with the majority (83%) obtained through the sense of sight (eyes) and a smaller portion (11%) through the sense of hearing (ears).

The research by Bachtiar (2015) revealed a significant difference in knowledge levels before and after health education between the lecture method and video media groups. The pre-test score was 19.67, and the post-test score was 22.07, with a p-value of 0.003. Another study by Ardianto (2013) found that audiovisual health education had a notable impact, as messages delivered through this medium were well-received. This indicates that the success of health education is influenced by the media used, as it affects knowledge, attitudes, and emotions. Providing accurate information about menstrual hygiene is expected to improve adolescents' behaviors in maintaining reproductive health.

Behavior is the manifestation of actions influenced by intent. Intent is shaped by attitudes, which are in turn influenced by beliefs about the outcomes of past actions. Behavior is affected by Predisposing Factors, Reinforcing Factors, and Enabling Factors. One of the predisposing factors for healthy menstrual hygiene behavior is having a supportive attitude toward such practices (Rofi’ah, Siti. Widatiningsih, Sri. Vitaningrum, 2017)

This study's results indicate that MANOVA analysis was used to test for differences in the means of two or more dependent variables simultaneously across groups based on independent variables. In this analysis, independent variables are categorical, and dependent variables are numerical. The reproductive health education media used in this study, consisting of video and module formats, had an impact on improving the knowledge, attitudes, and behaviors of adolescent girls regarding menstrual hygiene. The change in attitudes observed after health education can be attributed to the intervention designed to enhance individuals' knowledge. As knowledge increases, behavior tends to change accordingly. Health education improves knowledge, which in turn influences the attitudes and behaviors adopted.

Health education is an effort to address the gap between optimal health practices and current practices (Griffiths, as cited in Glanz et al.). Various methods have been developed in education to convey messages aimed at improving knowledge, attitudes, and behaviors. Lectures become more effective when combined with question-and-answer sessions, promoting two-way communication. Additionally, lectures are more successful when supported by teaching aids. In this study, video media proved to be the most influential, as it includes moving images, text, and audio explanations that effectively capture the attention of the target audience for health education. Videos present material in a concise, clear, and easily understandable manner, which helps enhance comprehension and reinforce respondents' memory. The use of video makes learning more varied, engaging, and enjoyable. Additionally, the duration of video presentations is relatively short, allowing all messages to be conveyed efficiently and effectively received by respondents.

This was evident during the health education sessions, where respondents were enthusiastic and attentive to the videos presented by the researcher. Mubarak's theory (as cited in Mulyadi, Warjiman, & Chrisnawati, 2018) supports this, suggesting that video media in the learning process can enhance motivation and learning outcomes because it has the ability to present complex or intricate information through audiovisual stimuli, leading to better results. Utilizing video media for education can make learning more effective, enjoyable, and engaging, which speeds up the material delivery to students. The advantages of video media include its ease of use for educators in presenting information, its appealing nature, and its interactive features. Videos can also be replayed multiple times. Health education using video media engages various senses, such as sight and hearing, which facilitates easier information absorption.

Maulana (2014) also supports this perspective, stating that the primary sensory channel for conveying knowledge to the brain is vision, accounting for approximately 75%-87% of knowledge intake, while 13%-25% is acquired through other senses. School-age children exhibit high levels of curiosity and enthusiasm for new experiences. At this stage, their cognitive development is at the concrete operational level, where logical thinking abilities are increasingly advanced. Consequently, children at this age are capable of receiving health education that can further develop their cognitive skills.

Media is the plural form of "medium," which refers to the channels or conduits through which communication occurs. Wibowo (2014: 259) explains that communication is not merely about sending and receiving information during informal exchanges among individuals; leaders must also ensure that communication flows openly both upward, downward, and throughout the organization. In this context, one communication strategy that can be employed is web-based communication (Wijaya, 2017).

Communication processes can utilize media that include both images and sound, allowing recipients to gain a tangible experience from the communication process. Knowledge is a cognitive process whereby an individual assigns meaning to their environment, leading each person to interpret stimuli differently, even when the stimuli are the same.

CONCLUSION

The conclusion of this research were the characteristics of adolescents: The majority of adolescents experience menarche between the ages of 11 and 13; There was a change in the average scores for knowledge, attitudes, and behaviors before and after receiving education through video and module; There was a significant difference in knowledge, attitudes, and behaviors before and after the intervention using video and module; Video media has the most significant impact on adolescents' knowledge, attitudes, and behaviors regarding personal hygiene. In contrast, covariates such as age, parental occupation, and family income do not influence knowledge, attitudes, or behaviors.

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