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THE INFLUENCE OF SMARTPHONE APPLICATION ON THE HYGIENE BEHAVIOR OF EXTERNAL REPRODUCTIVE ORGAN OF FEMALE STUDENTS IN 1st SEYEGAN SLEMAN JUNIOR HIGH SCHOOL

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ABSTRACT

***Introduction**: Adolescents is a period of the human development cycle, which is a transition between childhood and adulthood. In this transition many things must be considered one of them is the hygiene of reproductive organ. Hygiene of the reproductive organs, especially the external parts, is very closely related to prevent the reproductive organs from disease. Today is a digital era, most peoples activities used a smartphone including in finding and obtaining information. The use of smartphones at this time can affect the behavior of everyone, especially teenagers. One of them is the hygiene behavior of the reproductive organs. This research is to know the influence of smartphone application on the hygiene behavior of external reproductive organ female students of Seyegan Sleman Junior High School.*
***Methods**: This research used an experimental method with questionnaire-based survey (pre-test and post-test) was conducted in 90 teenage girls*
***Results**: The influence of source information variables, parent's work and parent's income on behavior were significant (p <0.05). Clinically / practically for respondents exposed to electronic information sources, their behavior is higher at 3.57 compared to non-electronic ones. As for the status of parents who work privately, their behavior is higher by 2.69 compared to those of Civil Servant For the income of parents > = average minimum wage, the level of behavior is higher by 5.34 compared to the income of their parents < average minimum wage. The influence of the information source variable, the work of parents and parent'S income towards behavior is 15 percent.*
***Conclusions**: There is a significant difference between the pre and post effects of smartphone applications on the behavior and knowledge of teenage girl reproductive organs hygiene Seyegan Sleman 1 Junior High School*

***Keywords** : Adolescents, Hygiene of reproductive organ, Reproductive organ*

INTRODUCTION

Adolescents is a period of the human development cycle, which is a transition between childhood and adulthood. The age limit for adolescents is 20 years. Adolescents as the group must know in detail reproductive health, especially about normal woman life. However, there are certain parts that are not considered for their health, is the reproductive organ. Reproductive organ is one of the vital organs. Everyone have to take care as much as possible, if they do not take care the vital organ, they will get various diseases [1].

The reproductive organs consist of external and internal parts, while the internal reproductive organ's women consist of the ovaries, fallopian tubes, and uterus. Vagina is a tube or fibro muscular duct

extending from the uterus to the outside, the vaginal is covered by a membrane called hymen. But in the external organ's women is vulva, include the labia majora, labia minora, client and bartolini glands [1].

Hygiene of the reproductive external organs, can prevent from various disease. The onset of reproductive disease in women is generally caused by a lack of understanding about how to maintain the cleanliness of their reproductive organs. Hygiene of reproductive organs is an effort to pay attention or improve the health of reproductive organs by caring for and maintaining reproductive organs. In addition they face the problem of changing reproductive health after puberty, especially teenage girl, sexual and reproductive health are the key of overall health. This shows that the importance of reproductive health knowledge in adolescents. One of the basic knowledge is about the care of external reproductive organs in teenage girl [2].

For this reason, teenage girl must be informed about the practice of proper care of external reproductive organs by teachers, family members, health worker and sources of information from the media, so that there is no misunderstanding about the care of cleaning external reproductive organs, especially Reproductive organs. This study was conducted to know the effect of smartphone applications on the hygiene behavior of external reproductive organs of female students in 1st Seyegan Sleman Junior high School in an effort to improve adolescent reproductive health status to make a quality family.

METHODS

This research used an experimental method, which researchers conduct a treatment activity toward the subject of research that aims to determine the effects that arise (increasing knowledge and behavior of adolescents) as a result of certain treatment activities [5]. The design of this study used quasi-experiment design (pre-test and post-test design.) Pre-test was carried out in a group and followed by giving treatment to them. After 3 days, a post test was conducted for the group to see the influence [5]. The subjects in this study were young women who met the inclusion criteria. From the existing study population samples were then taken with the inclusion criteria as follows: 1) girls with ages ranging from 12-15 years, 2) menstruating; 3) clear residential address and in Sleman Regency; 4) have a smartphone. As for the exclusion criteria, there are young women who do not download smartphone applications. The results for the sample size of this study have been obtained by 90 teenage girl. The sampling technique is based on random sampling using lottery.

The instrument of data collection in this study is a questionnaire regarding the knowledge and attitudes about the hygiene of external reproductive organs Likert model attitude statement. The type of data in this study is primary data. Data collection techniques were initially given to the pretest respondents then given treatment by giving counseling and application about hygiene of external reproductive organs, finally, for the next 3 days posttest, also followed by giving questions. Data processing techniques carried out by univariate with distribution frecuency, bivariate with Paired t test, and multivariate with logistic regression analysis.

RESULTS

Test of behavior normality and pretest - posttest knowledge

Table 1. Normality and behavior test

Variables	*p* value
Pretest Behavior	0.997
Pretest Knowledge	0.132
Post-test behavior	0.753
Post-test knowledge	0.221

Based on table 1, the results of the Normality Test obtained p> 0.05

1. *Characteristics of Respondents*

Table 2 : Distribution of Frequency Characteristics of Respondents

Variables	F	%
Information source		
Electronic	50	55.6
Non Electronic	40	44.4
Parent's work		
Private	74	82.2
Civil Servant	16	17.8
Parent's Income		
>=Average minimum wage	52	57.8
< Average minimum wage	38	42.2

Based on table 2, it can be seen that there are 50 respondents from electronic information sources that are larger than non-electronic. Parents as a private employees is 74 respondents, greater than civil servants. Whereas from the income of parents who> = UMR, as many as 52 respondents were greater than the <UMR.

2. *Effect of giving smartphone treatments to respondent's behavior and knowledge (pretest and post-test)*

Table 3 : The Influence average behavior and knowledge (pretest and post-test)

	Mean	Sd	Min	Max
Pretest Hygiene behavior	24.80	2.28	20	29
Pretest Knowledge	20.60	1.87	15	25
Post-test hygiene behavior	27.03	1.98	22	30
Post-test Knowledge	23.10	1.60	20	26

Based on table 3, the average pretest behavior is 24.80 with a standard deviation of 2.28, and a mean pretest of knowledge of 20.60 with a standard deviation of 1.87. while the posttest mean behavior is 27.03 with a standard deviation of 1.98, and the average posttest knowledge is 23.10 with a standard deviation of 1.60.

3. *The Influence of smartphone treatment to behavior and knowledge respondent (Pre-test, Post-test)*

Table 4 : the influence treatment of behavior and knowledge behavior (pretest postest)

	Pretest		Postest					
	Mean	Sd	Mean	Sd	T	P	Δ	CI95%
Behavior	24.80	2.24	27.03	1.98	11.13	<0.001	2.23	1.83-2.63
Knowledge	20.60	1.87	23.10	1.60	13.26	<0.001	2.50	2.12-2.87

Δ = average different

Based on table 4 it is known that the mean hygiene behavior pretest is 24.80 with a standard deviation value of 2.24. After treatment the average hygiene behavior increased to 27.03. From the results of the pair t test analysis, the statistical results were significant (P <0.001). Clinically / practically the results of hygine behavior were increased by 2.23.

While the mean results of the hygiene knowledge pretest was 20.60 with a standard deviation value of 1.87. After treatment the average hygiene knowledge has increased to 23.10. From the results of the pair

t test analysis, the statistical results were significant (P <0.001). Clinically / practically the results of increasing hygiene knowledge were 2.50.

4. Relationship of characteristic with female students behavior Seyegan Sleman 1 about hygiene of external reproductive organs

Table 5 : Relationship of Parent's work, Parent's income and source of information with average different behavior

	Average Different Behavior						
	N	Mean	Sd	T	*p* value	Δ	CI 95%
Source of information							
Electronic	50	12.38	1.63	7.47	<0.001	2.48	1.82-3.13
Non Elektronic (Ref)	40	9.90	1.46				
Parent's work							
Private	74	11.64	1.64	3.95	<0.001	2.01	1.00-3.01
Civil Servent (Ref)	16	9.63	2.60				
Parent's Income							
>=Average minimum wage	52	12.11	1.69	5.35	<0.001	1.98	1.24-2.72
<Average minimum wage	38	10.13	1.78				

Based on table 5, the results obtained from the source of information on the average difference in behavior obtained an average electronic information source of 12.38 with a standard deviation of 1.63. Whereas the non-electronic behavior averages 9.90 and standard deviation is 1.46. The results of the statistical test are significant and the average difference is 2.48. This means that respondents who have an electronic source of information with a better behavior level of 2.48 compared to non-electronic ones.

Based on table 5, the results obtained from parental work on the difference in mean behavior obtained a mean of private parents' work of 11.64 and standard deviation of 1.64. Whereas the parents' work on PNS averaged 9.63 and the standard deviation was 2.60. The results of the statistical test are significant and the average difference is 1.98. This means that respondents who have parents who work privately, the level of behavior is higher by 1.98 compared with respondents whose parents are civil servants.

Based on table 5, the results obtained from the parents 'income on the difference in mean behavior obtained the average income of the respondents' parents > = average minimum wage at 12.11 and standard deviation 1.69. Whereas the income <average minimum wage, obtained the average behavior and standard deviation 10.13. The results of the statistical test are significant and the average difference is 1.78. This means that respondents whose parents 'income> = average minimum wage has a higher behavior level of 1.78 compared to respondents whose parents' income is <average minimum wage (UMR).

5. Relationship of characteristics with knowledge of young female junior high school N Seyegan Sleman about hygiene of external reproductive organs

Table 6 : Relationship of Parent's work, Parent's income and source of information with average different behavior

	Average Different Behavior

	N	Mean	Sd	T	P	Δ	CI 95%
Source of information							
Electronic	50	12.38	1.63	7.47	<0.001	2.48	1.82-3.13
Non electronic (Ref)	40	9.90	1.46				
Parent's work							
Private	74	11.64	1.64	3.95	<0.001	2.01	1.00-3.01
Civil servant (Ref)	16	9.63	2.60				
Parent's Income							
>=Average minimum wage	52	12.11	1.69	5.35	<0.001	1.98	1.24-2.72
< Average minimum wage (Ref)	38	10.13	1.78				

Based on table 6, the results obtained from the source of information on the average difference in knowledge obtained an average of electronic information sources of 3.12 and standard deviation of 2.01. While the non-electronic knowledge is 1.73 and standard deviation is 1.03. The results of the statistical test are significant and the average difference is 1.39. This means that respondents who have electronic information sources have a higher level of knowledge of 1.39 compared to non-electronic ones.

Based on table 6, the results obtained from parental work on the difference in mean knowledge obtained by the mean of private parents' work were 2.77 and the standard deviation was 1.72. Whereas the work of parents of civil servant is 1.25 and standard deviation is 1.57. The results of the statistical test are significant and the average difference is 1.52. This means that respondents whose parents work privately have a higher level of knowledge of 1.52 compared to those whose parents are civil servants.

Based on table 6, the results obtained from the parents 'income to the average difference in knowledge obtained the average income of the respondents' parents> = average minimum wage of 3.11 and the standard deviation of 1.60. Whereas the income <average minimum wage obtained knowledge average 1.66 and standard deviation 1.69. The results of the statistical test are significant and the average difference is 1.45. This means that respondents whose parents 'income> = average minimum wage has a higher level of knowledge of 1.45 compared to respondents whose parents' income is < average minimum wage.

6. *The influence of characteristics (source of information, work of parents, parents' outcomes) on knowledge and behavior*

Table 7 : The influence of Parent's work, Parent's income and source of information with average different behavior

	Knowledge	Behavior
	P OR CI 95%	P OR CI 95%
Source of information		
Electronic	0.029 3.69 1.14-11.92	0.017 3.57 1.25-10.18
Non electronic		
Parent's work		
Private	0.004 4.93 1.66-14.59	0.047 2.69 1.01-7.13
Civil servant		

	Knowledge	Behavior
Parent's income		
>=UMR	0.019	0.018
	5.78	5.34
	1.32-25.20	1.33-21.34
< UMR		
R2	0.21	0.15
N	90	90

Based on table 7, the results of the influence of the information source variable, the work of parents and parents' income on Knowledge are significant (p <0.05). Practically for respondents exposed to electronic information, their knowledge is higher by 3.69 compared to non-electronic ones. As for the status of parents who work private knowledge is higher at 4.93 compared to Civil Servent. For the income of parents> = Average minimum wage the level of knowledge is higher at 5.78 compared to the income of their parents < average minimum wage. Obtained the results of the R2 value of 0.21 means the influence of the source of information variables, the work of parents and parents' income to Knowledge by 21 percent. While the rest is influenced by other variables.

The results of the influence of information source variables, the work of parents and parents' income on behavior were significant (p <0.05). Clinically / practically for respondents exposed to electronic information sources, their behavior is higher at 3.57 compared to non-electronic ones. As for the status of parents who work privately, their behavior is higher by 2.69 compared to those of civil servant. For the income of parents> = average minimum wage, the level of behavior is higher by 5.34 compared to the income of their parents < average minimum wage. Obtained the R2 value of 0.15, it means that the influence of the information source variable, the work of parents and parents' income towards behavior is 15 percent. While the rest is influenced by other variables.

DISCUSSION

Based on the results of this study, the researcher change an independent variable in the form of information sources, the work of parents and parents' income, while the dependent variable was in the form of behavior and knowledge.

This study aims to determine whether there is a change in the pre and post test of knowledge and behavior about the hygiene of external reproductive organs in adolescent girls at 1st Seyegan Sleman Junior High School after counseling through a smartphone application

Based on table 1, the Normality Test obtained the results of the pretest and posttest of behavior and knowledge all were normally distributed, and all of them got the results of *p-value* > 0.05. This means that respondents before and after treatment are given counseling and material through smartphones about hygiene of external reproductive organs, the results obtained are equally high. The right source of information for adolescents, especially about the hygiene of young female reproductive organs, whether in daily care or during the menstrual period, will affect the hygiene behavior of adolescent reproductive organs. Sources of information obtained from the results of this study are from electronic information sources, because young women are more easily exposed to mass media such as television through advertisements that are shown to attract the attention of the young women themselves. These results are in accordance with his research which recommended that young women get information sources about the care of hygiene of reproductive organs from television, multi-media, and other electronic information source [6].

1. Characteristics of Respondents

Based on Table 2 shows that the majority of respondents are more interested to electronic information sources than non-electronic information sources. That conclusion is known from how the respondents often sought, obtained information or accessed about maintaining genital hygiene from the mass media.

Whereas for the parents' job variable, the results of univariat analysis are obtained, namely that private job is higher than civil servants, this is due to the possibility of high salary of the private job easily to buy some electronic information resources, such as smartphone. Whereas respondents whose parents' income is less than the average minimum wage are almost equal to the ≥ UMR, statistically the results are significant (P <0.001). Clinically / practically the results of improvement in hygiene behavior were 2.23, meaning that respondents were very responsive when given counseling via a smartphone.

While the average pretest of knowledge is 20.60 with a standard deviation value of 1.87. After treatment the average knowledge has increased to 23.10. From the results of the pair t-test analysis the results were statistically significant (P <0.001). Practically the results of knowledge increase are 2.50, meaning that respondents are very responsive when given counseling via a smartphone. The influence of smartphone which is very prominent is the influence on children, spesificaly among students / teenage girls.

2. Effect of giving smartphone treatments to respondent's behavior and knowledge (pretest and post-test)

Based on table 4 results of the analysis of the source of information on the average difference in knowledge, the results of the average electronic information source were obtained 3.12 and standard deviation 2.01. While the non-electronic knowledge is 1.73 and standard deviation is 1.03. The results of the statistical test are significant. And the average difference is 1.39. This means that respondents who are exposed to electronic information sources have a higher level of knowledge compared to non-electronic ones.

The increasing number of media available at this time can make it easier for adolescent girls to find out about something. But sometimes not all media can explain this well. For example, an advertisement about reproductive organ cleansing will encourage adolescent girls to try without thinking about its effects on reproductive organs this is because adolescent girls know little about reproductive organ problems and the consequences of bad behavior on reproductive organ health [7].

The results of the analysis of parents 'work on the difference in mean knowledge obtained by the results of private parents' work as much as 2.77 and the standard deviation of 1.72. The statistical test results are significant. And the average difference is 1.52, meaning that the respondents whose parents are private workers have a higher level of knowledge compared to the civil servants.

The results of the analysis of parents' income on the difference in mean knowledge found that the average income of their parents> = higher average minimum wage. From the statistical test the results are significant. And the average difference is 1.45. This means that respondents whose parents' income is more than the average minimum wage level of knowledge is higher when compared to those whose income is less than the average minimum wage.

3. Association between characteristics with the behavior of female students 1st Seyegan Sleman junior high school about hygiene of external reproductive organs

Based on table 5, the results obtained from the source of information on the difference in mean behavior obtained an average of electronic information sources and the non-electronic test results were statistically significant. And the average difference is 2.48. This means that respondents who have sources of information with electronic behavior levels are better when compared to non-electronic ones.

Based on table 5, the results obtained from the work of parents on the difference in mean behavior found that the average job of a private parent is higher than the work of parents of civil servants. Statistically

significant test results. And the average difference is 1.98. This means that respondents who have parents whose private jobs have a higher level of behavior when compared to respondents who have the work of their parents are civil servants.

Based on table 5, the results obtained from the parents' income on the difference in mean behavior obtained an average income of parents of respondents who> = average minimum wage is higher than their income < average minimum wage. The results of statistical tests are significant. And the average difference is 1.78. This means that respondents whose parents 'income > average minimum wage has a higher level of behavior when compared to respondents whose parents' income is < average minimum wage.

4. Relationship of characteristics with knowledge of young female 1st Seyegan Sleman Junior High School about hygiene of external reproductive organs

Based on table 6, the results obtained from the Source of information on the average difference in knowledge and non-electronic statistical tests result are significant. And the average difference is 1.39. This means that respondents who have electronic sources of information have a higher level of knowledge than those with non-electronic sources of information.

Information will have an influence on knowledge and getting a lot of good information will increase knowledge in this regard. Lack of information about maintaining good reproductive organ can cause teenage girls not to understand the importance and how to properly treat their reproductive organ. Reproductive organs are one of the vital organs of the body. Every person is obliged to take care as much as possible, if not, can invite various diseases [8].

Based on table 6, the results obtained from parental work on the difference in mean knowledge obtained by the work of private parents and the work of parents of civil servants and the statistical test results were significant. And the average difference is 1.52. This means that respondents who have parents whose private jobs have a higher level of knowledge compared to those who have the work of their parents as civil servants.

Based on table 6, the results obtained from the parents 'income on the average difference in knowledge obtained by the average income of the respondents' parents > = average minimum wage and whose income < average minimum wage Statistical test results are significant. And the average difference is 1.45. This means that respondents whose parents 'income <= average minimum wage level of knowledge is higher when compared to respondents whose parents' income is < average minimum wage.

5. Influence of characteristics (source of information, work of parents, parent's incomes) on knowledge and behavior

Based on table 7, the results of the influence of the information source variable, the work of parents and parents' income on Knowledge are significant (p <0.05). Clinically / practically for respondents exposed to electronic information, their knowledge is higher when compared to non-electronic ones.

As for the status of parents who work privately, their knowledge is higher when compared to those whose parents work for civil servants. For the income of parents > = average minimum wage, the level of knowledge is higher when compared to the income of their parents <average minimum wage. Obtained the results of the R2 value of 0.21 means the influence of variable sources of information sources, the work of parents and parents' income to Knowledge by 21 percent.

A person's knowledge of objects has a different intensity or level because knowledge is influenced by several factors. Internal factors, namely education, age, experience and external factors, namely information, social, cultural and environmental [5].

While the influence of the source of information variables, the work of parents and parents' income on behavior results were significant (p <0.05). Practically or respondents who are exposed to electronic

information sources, the behavior is higher when compared to those with non-electronic information sources. This is because all respondents have been exposed to smartphones, so they will more often read about the material for hygiene of external reproductive organs given. As for the status of parents who work privately, their behavior is higher when compared to those who work as civil servants. For the income of parents> = average minimum wage, the level of behavior is higher when compared to the income of their parents < average minimum wage. Obtained the results of the R2 value of 0.15 means the influence of variable sources of information sources, the work of parents and parents' income towards behavior by 15 percent. While the sisan is influenced by other variables.

Socio-economic variables / income of parents were stated as meaningful with the behavior of adolescent female reproductive organs. This is in accordance with the results of the study stating that low socio-economic conditions, staying in the countryside and lack of access to information and difficult to buy healthy products during menstruation [9].

The results of this study are supported by research that states that socio-economic factors significantly influence the source of information and the level of awareness about the behavior of hygiene of external reproductive organs and during menstruation among adolescents, socioeconomic / income of parents may also trigger barriers for parents to talk to teenagers her daughter about reproductive organ hygiene and behavior during menstruation [10].To date most research on the effects of education on health has focused on cross-generation of relationships between parents, education and adolescent health. But in fact in adolescence, the technology that is now actually becomes toxic to teenagers. Regardless of age, all ages can access applications and media available on smartphones. Applications on smartphones clearly have a big impact especially on teenagers, various applications have penetrated everywhere. However, how to use the application back again to each individual.

Maintaining the cleanliness of reproductive organs is an initial effort to maintain reproductive health. Many problems are caused if this effort is left not done properly. Problems that can arise in the reproductive organs such as vaginal discharge, pelvic inflammation and even infertility can occur. This of course must be considered given the importance of reproductive organs for a woman.

CONCLUSION

There is a significant difference between the pre and post effects of smartphone applications on the behavior and knowledge of teenage girl reproductive organs hygiene 1st Seyegan Sleman Junior High School with p-value 0.001. And the contribution to the knowledge and hygiene behavior of external reproductive organs, namely the source of information, the work of parents and parent's income

SUGGESTION

Based on the results of the research, suggestions that can be proposed are to the 1st Seyegan Sleman Junior High School students. It is expected that all of female students begin to pay attention to the hygiene of their external reproductive organs, to prevent infection or serious problems in their reproductive organs by finding information from several mass media related to reproductive health. And to the further researchers. The next researcher is expected to expand the research area by looking at other factors that can affect the hygiene behavior of external reproductive organs in teenage girl

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