



The Effect of Health Education Through The Application “Hi, Teens” On Young Women’s Knowledge and Attitudes About Fluor Albus

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Abstract. This study aims 2018 in Indonesia there were 90% of women experiencing vaginal discharge where 60% of them were adolescent girls. The lack of space to access reproductive health information, especially about fluoralbus, is one of the triggers for the low knowledge and attitudes of adolescent about fluoralbus. So it's necessary to know the influence of health education through the Hi, teens application on the knowledge and attitudes of young women about fluoralbus. Type of research is pre-experimental with one group pre-test post-test. Population 78 class XII adolescent girls of SMK Tri Tunggal Surabaya, a sample 56 adolescent girls using simple random sampling technique. Data analysis techniques with Wilcoxon Sign Rank Test with $\alpha = 0.05$. Before the intervention, only a small percentage (4%) of adolescent girls were well-informed and there's increase in almost all (82%) being well-informed. While before the intervention only a small percentage (14%) of adolescent girls had a good attitude and after that there was an increase in the majority (71%) had a good attitude. From the results of the analysis, it is known that there is an influence of providing health education through the application "Hi, Teens" on the adolescent girls's knowledge and attitudes about fluoralbus with a p -value of 0.000. Conclusion: increase of knowledge and attitudes likely due to the process of transferring information through health education with android applications. So there is an influence between the provision of health education through the application "Hi, Teens".

Keywords: Education, Applications, Knowledge, Attitudes, Fluor Albus

1 Introduction

Reproductive health is closely correlated with the emergence of well-being conditions both physically and mentally and socially as a whole and free from disease. Therefore, reproductive health still has its own urgency for both men and women, especially in adolescence[1]. Adolescent groups, especially adolescent girls, often experience reproductive health problems or problems, one of which is fluorine albus or commonly called vaginal discharge. The prevalence of Indonesian fluorine albus in 2017 con-

cerning Adolescent Reproductive Health (KRR) stated by the Indonesian Demographic and Health Survey (IDHS) shows that 65% of adolescent girls experience fluorine albus conditions [2]. Meanwhile, the prevalence of leucorrhoea in 2017 based on research in East Java states that leucorrhoea is experienced by 75% of 37.4 million adolescent girls [3].

Many problems that occur in developing countries, such as Indonesia, are based on the lack of space to access reproductive health information, especially leucorrhoea. Based on the "Program Performance and Accountability Survey (SKAP) in 2018" stated that from a total of 22,210 adolescents, it is known that the knowledge index regarding Adolescent Reproductive Health (KRR) is only as large as 57.1%. This can be interpreted that the status of adolescent knowledge about KRR is still relatively low. In fact, in 2018 WHO stated that fluorine albus is experienced at least once by 75% of women in the world, of which 45% of this condition is experienced twice or even more in their lives [4].

In 2018 in Indonesia, 90% of women experienced vaginal discharge where 60% of them were adolescent girls [4]. While researchers have conducted preliminary studies at Tri Tunggal Vocational High School (SMK) Surabaya, it was found that 9 out of 10 female students (90%) experienced fluorine albus and did not have enough knowledge about fluor albus. The prevalence of candidiasis was 56.25% in women with leucorrhoea. It was not associated with sociodemographic factors such as age, marital status and BMI. Gestational age; the color of the cervix and the amount and consistency of leucorrhoea were related to the occurrence of candidiasis. The most common species included *Candida dubliniensis* (36.11%) and *Candida albicans* (29.17%) [5].

Fluor Albus is caused by endogenous and exogenous actors where this endogenous factor is in the form of a pubic hole that has abnormalities. While exogenous factors are divided into two namely infection by bacteria, viruses, fungi, parasites and non-infections such as poor vulva hygiene, vaginal moisture, endocrine disorders, reproductive diseases, to age and behavior [6]. One of the parasites that cause this condition is trichomoniasis vaginalis. In most cases, trichomonas may be attached to other cells in the leucorrhoea sample, such as epithelial cells, and this diversity poses challenges to ways such as morphologically segmentation [7]. Vaginal discharge causes infertility to trigger pregnancy outside the uterus due to blockage in the tubes. Not only that, vaginal discharge that is treated late can have an impact on the incidence of endometritis, pelvic inflammation, and salpingitis. Even more widespread vaginal discharge can trigger STDs or Sexually Transmitted Diseases in adolescents [8]. Vaginal discharge is also considered a sign of inflammation in the vagina. The number of white blood cells in the leucorrhoea microscopic image can indicate the severity of vaginal inflammation [9]. One of fluor albus's complication is cervical cancer. With an estimated 570,000 cases and 311,000 deaths in 2018 worldwide, cervical cancer is still one of the diseases that seriously endanger women's health [10].

Strengthening the knowledge and attitudes of adolescents regarding the incidence of fluorine albus through the provision of information and "health education" is the current government's solution. In this case, the use of media in health education can help clarify information because the display is considered easy to operate and access and involves many senses [11]. This is also supported by access to media and gadgets

which are classified as high among teenagers. Where the "Indonesian Internet Service Providers Association (APJII)" in a survey in 2018 stated that adolescents aged 15-19 years became the highest number of internet users [12].

The Iswanti study [13] conducted a research study entitled "The Effect of Health Education on Knowledge, Attitudes, And Actions in Prevention of Leukorrhea in Adolescent Girls", obtaining positive results related to increasing attitudes and knowledge of adolescent girls towards fluor albus after interventions in the form of health education were provided [14]. Then strengthened by the research study of Sri Dinengsih [15] which states that providing information through android applications is considered more effective in influencing the increase in adolescent knowledge related to reproductive health [15].

Based on these data, researchers are interested in providing "health education" to adolescent girls through applications that are predicted to be the most effective access that is currently very familiar with adolescent lifestyles. This was realized by conducting a study entitled "The Effect of Health Education Through the Application "Hi, Teens" on Young Women's Knowledge and Attitudes about Fluor Albus"

2 Methods

This type of research is experimental with pre-experimental methods using a one group pre-test post-test design approach. This research was conducted at SMK Tri Tunggal Surabaya in January - March 2023. The population in this study is all class XII female students who are still active as students of SMK Tri Tunggal Surabaya, which is as many as $N = 78$ students. The sample in this study is a sample that meets the inclusion criteria, the sample size in this study was 56 female students.

This study used a simple random sampling technique. The independent variable in this study is the provision of health education through the application "Hi, Teens". The dependent variable in this study is the knowledge and attitude of adolescent girls. In the data collection process, this study uses primary data types with instruments in the form of questionnaires that have been tested for validity and reliability by researchers. The statistical test in data analysis in this study is the normality test using the Kolmogorov smirnov test, while analytical tests are carried out with Wilcoxon Sign Rank Test through SPSS statistical software. So that the difference between pretest and post test will be obtained $\alpha = 0.05$. The hypothesis (H_a) will be accepted if the value of p -value obtained from the calculation of statistical tests is smaller than 0.05 ($p < \alpha$).

3 Results

Fifty-six adolescent girls are included on this research. With the age frequency distribution as follows. Table 1 shows that the vast majority (73%) of 18-year-old girls and none (0%) of 16-year-old girls.

Table 1. Frequency Distribution of Respondents' Characteristics Based on the Age of Female Students Class XII in January – March 2023 at SMK Tri Tunggal Surabaya

Age	n	%
16 years old	0	0
17 years old	4	7
18 years old	41	73
19 years old	11	20
Total	56	100

Table 2. Cross-Table of the Effect of Young Women's Knowledge About Fluor Albus Before and After Being Provided Health Education through the "Hi, Teens" Application in January – March 2023 at SMK Tri Tunggal Surabaya

Category	Knowledge				p-value
	Pre-test		Post-test		
	N	%	n	%	
Good	2	4	46	82	Wilcoxon Sign Rank Test $\rho = 0.000$
Enough	28	50	10	18	
Less	26	46	0	0	
Total	56	100	56	100	

Based on Table 2. shows the results that before health education is given only a small percentage (4%) of adolescent girls are well informed. Whereas after being given health education, almost all adolescent girls (82%) became well informed and none (0%) of the adolescent girls became less knowledgeable. The results of the statistical test of knowledge between before and after health education was given" using the Wilcoxon Sign Rank Test obtained a significance value ρ -value = 0.000.

Table 3. Cross-Table of the Influence of Young Women's Attitudes About Fluor Albus Before and After Health Education through the Application "Hi, Teens" in January – March 2023 at SMK Tri Tunggal Surabaya

Category	Attitude				p-value
	Pre-test		Post-test		
	N	%	n	%	
Good	8	14	40	71	Wilcoxon Sign Rank Test $\rho = 0.000$
Enough	42	75	16	29	
Less	6	11	0	0	
Total	56	100	56	100	

Based on Table 3 shows the results that before the intervention in the form of "health education, only a small percentage (14%) had a good attitude. Whereas after being given health education, most adolescent girls (71%) have a good attitude and none (0%) of adolescent girls have a less attitude. The results of the statistical test of attitude before and after health education using the Wilcoxon Sign Rank Test obtained a significance value $p\text{-value} = 0.000$.

4 Discussion

4.1 Young Women's Knowledge About Fluor Albus Before and After Being Provided Health Education Through the Application "Hi, Teens"

Based on the results of the study, it can be interpreted that "there is an increase in knowledge of adolescent girls" between the conditions before the intervention in the form of health education through the application "Hi, Teens" was given and the conditions afterwards about fluorine albus.

Knowledge becomes something that is directly correlated with the dominant learning process and is important to shape one's actions, one of which is through external factors, namely in the form of socio-cultural conditions and information facilities [16]. Related to this, Nototadmodjo explained various factors that influence knowledge including culture, experience, level of education, especially information that is predicted to be a knowledge forming factor (Windi Chusniah Rachmawati 2019). Health education is one of the paths taken to support the formation of knowledge as part of the information factor. So that health education is predicted to be able to become a process in increasing knowledge and "changing health behavior [17]. Information provided through health education is able to add and form new knowledge in a person so that the end result is able to form a new health behavior.

Nurhumairah [18] research suggests that adolescent girls' knowledge has increased after health education is provided. This is in accordance with research conducted by Juliansyah and Salma Zulfani in 2021 which stated that there was a change and increase in knowledge in the prevention of fluorine albus after being given health education. Herlia's research study [19] also stated that health education has a significant effect on respondents, namely in the form of increasing knowledge. Eufrasia (2020) in her research stated that adolescent girls still have low knowledge about reproductive health, one of which is due to the lack of space to access the main information about reproductive health.

In line with conditions in the field where before health education was given, the level of knowledge about fluorine albus half of the total adolescent girls was categorized as adequate, while almost half of the others were categorized as less. Meanwhile, after researchers provided health education, there was an increase in knowledge. This is evidenced by almost all of the young women having good knowledge categories while only a small percentage of young women have the category enough knowledge.

So based on the description above, it can be seen that the provision of health education provided by researchers through the application "Hi, Teens" is able to increase the knowledge of adolescent girls about fluorine albus. The lack of knowledge of adolescent girls about fluor albus may occur due to lack of access to information on reproductive health, especially fluor albus and the lack of health education provided to female students. In this study, the results were obtained after being given health education, variable knowledge increased significantly in adolescent girls about fluorine albus. Researchers assume that this is likely to happen because there are several factors that can affect knowledge, one of which is the transfer of information through the process of providing health education.

4.2 Young Women's Attitudes About Fluor Albus Before and After Health Education Through "Hi, Teens" Application

Based on the results of the study, it can be interpreted that there is an increase in the attitude of adolescent girls between conditions before the intervention in the form of health education through the application "Hi, Teens" was given and conditions afterwards about fluor albus.

Attitude is a condition and ability to think that is used to respond to the stimulation of an object so that it can influence a direct or indirect action. While the process of forming these attitudes is influenced by several factors including mass media, personal experience, and educational institutions as a concept that has a good and bad influence on individual attitudes. So that after forming a good attitude, an individual is able to be at the level of accepting, responding, appreciating, and being responsible for something that has been known because attitude functions as a means of regulating behavior towards something [20]

Meinarisa's research [21] suggests that significant differences were found between before and after the education package on vaginal hygiene was given. Where the understanding of respondents becomes better, especially related to attitudes in maintaining the cleanliness of the genital area. So that in the study conducted by Meinarissa [21] the results were stated that the attitude variable increased after being given education or health education. This is in accordance with the research of Fauziah Yulfitria [22] which provides results, namely there is a significant increase in attitudes (behavior) in respondents between before and after being given health education [22]. This statement is in accordance with Nurrahmaton's [23] research providing similar results that attitude variables have increased between before and after health education is given.

In line with this, research conducted by researchers explained the results that there was an increase in attitudes between before and after health education. This condition is likely to occur due to the low level of knowledge possessed by female students related to reproductive health, especially fluor albus and lack of access to mass media about attitudes towards preventing and handling reproductive health problems, especially fluor albus, or even the media that is currently an instrument of providing health education is less relevant so that adolescents are bored to learn. It is likely that with a low level of knowledge, young women are not able to show the right attitude in han-

ding and preventing the occurrence of fluorine albus. This is proven after being given health education is able to change the knowledge of adolescent girls so that there is a change in attitude where most young women are in the category of good attitudes. Researchers in their research stated that after being given health education by utilizing application media, there was a significant increase in attitudes.

4.3 The effect of providing health education through the application "Hi, Teens" "on young women's knowledge about fluor albus

Based on the results of statistical tests of adolescent girls' knowledge before and after being given health education through the "Hi, Teens" application about fluorine albus using Wilcoxon Sign Rank Test statistical software, results were obtained which interpreted that there was an influence between the provision of health education through the application "Hi, Teens" on young women's knowledge about fluor albus. In optimizing the process of providing health education, several media are needed as a means of delivery, including electronic media, one of which is in the form of applications. Health education with application media is a process of transferring information about health with a computer program with a certain system and carrying out special tasks from android users [24] Application media is a computer system that can run in accordance with the program created (Nur Kumala Dewi, et al. 2021). Teenagers are predicted to be the most perpetrators in accessing the internet and gadgets, especially in exploring reproductive health, so in this case the development of Android-based digital applications is considered necessary. So that adolescents' needs for access to comprehensive health information and education can be met fulfilled [25] This is because the process of disseminating information is considered fast and very easy to access, which can be done anywhere and anytime [26]

Eli Yustin [11] in his research revealed that in the process of providing health education, the media used can help clarify information because the display is considered easy to access and operate and involves many senses. Researchers use electronic media in this study in the form of applications as a medium in the process of delivering health education because adolescents today are considered very familiar with technology, especially gadgets have become a tool that cannot be separated from adolescent life. In addition, the application also has several advantages where the process of disseminating information can occur faster, more effectively, and more efficiently because it can be accessed easily anywhere and anytime, and the content presented can be adjusted to the innovation of researchers so that it is more interesting to read and learn [11].

Sri Dinengsih's research [15] is in accordance with this condition which suggests that health education through android applications is more effective in increasing knowledge than through the lecture method. In line with the research of Muryaroh and Fajartia (2017) which states that learning outcomes increase after the learning process with android application media because students are prepared to be able to independently and actively in the learning process. This research is supported by research conducted by Wiwin [25] which stated the results that currently adolescents are intensively accessing the internet and gadgets to get accurate and correct information,

one of which is about reproductive health [25]. According to the theory proposed by Edgar Dale (2016) , providing education with auditory engagement methods is able to absorb information as much as 20%, while with vision involvement is able to absorb information 30% [25]

The application created by the researcher is an application that optimizes the visual learning process of the viewer in which there are theories that explain about reproductive health. This application has several differences with other applications which are also the advantages of applications created by researchers. Where this application can be accessed offline so it does not require quota during the learning access process. This possibility makes teenagers enthusiastic about accessing this application because besides being able to be operated offline, this application can also be downloaded for free via Bluetooth or other media sharing.

In addition to the advantages possessed by the android application, the process of transferring information through visual or vision is interpreted to have a higher and effective percentage compared to other sensing. so that in this study health education through the application was able to influence the knowledge of adolescent girls about fluorine albus between before and after being given health education through the application "Hi, Teens" so that there was an increase in knowledge.

4.4 The Effect of Providing Health Education Through the Application "Hi, Teens" on Young Women's Attitudes About Fluor Albus

Based on the results of statistical tests of knowledge before and after being given health education through the application "Hi, Teens" about fluorine albus using statistical software Wilcoxon Sign Rank Test, results were obtained which interpreted that [27]there was an influence between the provision of health education through the application "Hi, Teens" on the attitudes of adolescent girls about fluor albus. There are various factors that can influence attitude variables including mass media, education, personal experience, and culture. In this study, health education was carried out through mass media which is predicted to be able to change a person's attitude regarding health. The mass media used by researchers in this study is based on android applications that are familiar with adolescent activities so that they are considered effective for providing health education.

This is in line with Teldi's research (2022) [24]which states that the use of application technology as a learning medium can have an influence on its students. The process of transferring information is easy to receive and runs optimally, one of which is by utilizing technological mass media in the form of application media through gadgets that are very familiar to teenagers so that they are easily accessible anywhere and anytime coupled with uncomplicated operation. Sudiarto [28] in his research stated [29]that providers are aggressively taking advantage of the opportunities of the industrial revolution to build applications, especially as educational media targeting teenagers as the main actors of gadget users. This is proven to be able to reduce the number of reproductive health problems in adolescents through health education accessed in the form of applications. This is in line with research conducted by Irmayani in 2018 which stated that the provision of health education can have an effect in improv-

ing the attitudes of respondents regarding genital hygiene. Research conducted by Tina Mawardika in the use of applications as a medium for providing health education in 2019 provided the results of application media being able to influence adolescent attitudes towards reproductive health so that there was an increase in attitudes between before and after accessing the application.

Research conducted by researchers found that there is an influence between health education provided through applications on adolescent girls' attitudes about fluorine albus [27]. Where health education provided to respondents is an activity or action that can influence respondents so that there is a change in their main attitude in terms of prevention and handling of fluor albus. so that it is indirectly able to contribute to efforts to reduce the incidence of fluorine albus in Indonesia. This is likely because teenagers as a generation that has been digitized by technology have a close relationship with access to gadgets in their daily lives. Researchers created a health application as a provider of information, especially about fluorine albus reproductive health that is simple, economical, and efficient to be accessed by adolescents.

5 Conclusion

Based on the results after conducting research and discussing descriptions, results were obtained where adolescent girls experienced an increase in knowledge and attitudes about fluorine albus after being given health education through the application "Hi, Teens". Then There is an influence between the provision of health education through the application "Hi, Teens" on the knowledge and attitudes of young women about fluor albus.

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