



The Influence of WhatsApp Education Information Communication on Knowledge and Attitude of Early Cervical Cancer Detection Medan

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Abstract

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BACKGROUND: Cervical cancer is a disease that most commonly suffered by women of 30–50 years old which is caused by human papillomavirus infection. Indonesia women's awareness to carry out cervical cancer early detection regularly is low due to lack of knowledge, including risk factors, prevention, and common misconception stating that pap smear and VIA tests are taboo and embarrassing.

AIM: This study is aimed to identify the influence of WhatsApp educational information communication (WEIC) on knowledge and attitudes of early cervical cancer detection program.

METHODS: A quasiexperiment was used in this study with one group pre-test–post-test. Fifty women of child-bearing age were selected by purposive sampling. The research instrument used a knowledge and attitudes questionnaire on a smartphone that was already installed with WhatsApp.

RESULTS: The result of pre-test–post-test on knowledge was analyzed using paired sample t-test and obtained $p = 0.000$ ($p < 0.05$) and attitudes pre-test–post-test obtained $p = 0.000$ ($p < 0.05$).

CONCLUSION: It can be concluded that there were statistically significant differences between knowledge and attitudes prior and after WEIC is given.

Introduction

Cervical cancer is a problem that most commonly suffered by women due to human papillomavirus infection. Cervical cancer is in highest prevalence in Indonesian women. Cancer can actually be found at the early stage, but most are identified only after the advanced stage (70%) which leads to high mortality [1]. According to Global Burden Cancer data in 2018, there were 18.1 million new cases and 9.6 million deaths caused by cancer. Incident of cancer in Indonesia is claimed to be the eighth in Southeast Asia that accounts for 136.2/100,000 population and is at 23 position throughout Asia. The prevalence of cervical cancer was 23.5/100,000 population with approximated death cases of 13.9/100,000 women [2].

The high incidence of cervical cancer in Indonesia each year can be a major threat as in the majority of sufferers, cervical cancer is detected only after the late stage, in which the cancer has reached other organs throughout the body leading to increased medical cost and mortality. The incidence of cervical

cancer can be suppressed with primary prevention efforts by increasing outreach activities to the community to carry out a healthy lifestyle, avoiding risk factors for cancer, immunization with the HPV vaccine and followed by early detection of cervical cancer through VIA and pap smear examination [3].

The awareness of Indonesian women to carry out early detection of cervical cancer regularly is still low due to the lack of public knowledge about cervical cancer including risk factors, prevention efforts, and common opinion that pap smear and VIA tests are taboo and shameful, whereas 90–95% of risk factors for cervical cancer are related to behavior and environment. Therefore, there need to be a joint, comprehensive, and continuous movement to increase public awareness of cervical cancer [3].

Early detection of cervical cancer is an innovative breakthrough in health to reduce morbidity and mortality from cancer. Women who do early detection will reduce the risk of developing cervical cancer. This early detection is shown to be able to find precancerous lesions as early as possible so that treatment can be given immediately. A direct cervical

examination is called the VIA test, an alternative screening examination of the pap smear that is cheaper, more practical, easier, and only uses simple equipment. The test can be performed by any trained health professionals beside gynecologists. The purpose of the VIA test is to reduce cervical cancer mortality and to understand the abnormalities that occur in cervical cancer [4].

Communication, information, and education (CIE) are carried out as a process of delivering messages about early detection of cervical cancer to families and communities, especially for women to increase knowledge and change behavior. The CIE method can increase women of child-bearing age knowledge about cervical cancer and the benefits of the VIA test. The VIA test can detect inflammation and signs of cervical cancer in women of child-bearing age and is recommended for women of childbearing age in every 3 years [5].

With the presence of the media, the public will find it easier to get cervical cancer information. One of the CEI methods is using the WhatsApp application to educate women of child-bearing age to gain knowledge about the early detection of cervical cancer. Internet and smartphone users have long been researched and proven to be successful in improving public health status. Internet channels make it easier for people to find information and specific learning. Information search is dominated by the use of the internet through the media of smartphones. This trend is an opportunity for health practitioners to deliver health information on social media [6].

WhatsApp is a popular application with the highest number of users in the world. WhatsApp users can take advantage of the facility to send messages, pictures, videos, and video calls. Based on research by Ekadinata and Widyandana, messages will be sent for 2 weeks containing early detection of cervical cancer and picture messages at 09.00–11.00 A.M. This hour is a housewife's free time, so there will be more opportunity for them to read the messages [7]. Education using WhatsApp is one type of multimedia intervention, namely, using digital media using spoken words in the form of photos, illustrations, animations, or videos, this media can be recommended to increase knowledge and attitudes and community participation in early detection of cervical cancer.

Methods

This study used a quasi-experiment design with one-group pre-test-post-test design that was carried out by giving a pre-test (initial observation) before intervention, and then a post-test (final observation). The research sample consisted of 50 respondents

without a control group. Researchers took samples using purposive sampling with criteria inclusion, namely, (1) clients are willing to be respondents; (2) able to read and write; (3) composmentis; (4) the client has an smartphone; (5) client is married; (6) client is not pregnant; and (7) client is domiciled in the area of the Medan Sunggal Health Center. This study consisted of one group that would receive treatment interventions. WhatsApp was used to broadcast the material of education daily. Respondents started with a pre-test (P-1) and after that, they were given an intervention through WhatsApp for 14 days starting from 09.00 to 11.00 A.M with cervical cancer early detection material. This health education material provides information on detecting cervical cancer before any signs or symptoms appear. It is intended for use by health providers and by women to be informed about early detection tests that can prevent cervical. After the intervention is complete, a post-test (P-2) will be carried out on these respondents to identify changes in knowledge and attitudes of the early detection of cervical cancer in women of child-bearing age after an intervention.

Knowledge and attitude questionnaire which had been tested for validity and reliability by the researcher with *Cronbach alpha* of 0.883–0.88 for knowledge and attitude respectively. Data were analyzed using univariate and bivariate test, and the Kolmogorov–Smirnov test was used to assess data normality. Paired sample hypothesis test (paired sample t-test) was also carried out. This research has received ethical approval from the Ethics Commission of the Universitas Sumatera Utara.

Respondents who have agreed to become respondents sign the informed consent and will be included in the group for intervention. WhatsApp group was used by researchers as a communication tool to direct respondents to every educational implementation activity provided by researchers to respondents. The pre-test was given at the first meeting with the respondent then the post-test measurement was carried out 1 week after the first meeting, all communication activities were carried out using WhatsApps group where to exchange all information related to the place and the time when respondents and researchers met to take measurements of the post-test and a place to provide information on the schedule for the IVA test.

Results

Respondent characteristics

The majority of respondents were 40–49 years old ($n = 24, 48\%$), the majority of respondents aged >20 were 44 people (88%), and the majority of respondents who had children > 2 were 27 people (54%). Majority of respondents are married with 48 people (96%), and

most are high school graduates (n = 33, 66%). Most of our respondents are housewives (n = 37, 74%) with a monthly income of less than regional minimum wage as many as 36 people (72%). Thirty six respondents (72%) admitted of not getting any education about cervical cancer and as many as 47 respondents (94%) have not carried out any pap smear or VIA test instead of the fact that screening center is reachable. We also found that more than half of our respondents (n = 32, 64%) do not use antiseptics (Table 1).

Table 1. Respondent characteristics (n = 50)

Variable	F	%
Age		
18–28 years	8	16
29–39 years	18	36
40–49 years	24	48
Married age		
<20 years	6	12
>20 years	44	88
Number of parity		
No children yet	4	8
<2	19	38
>2	27	54
Marital status		
Married	48	96
Widow	2	4
Educational		
Junior high school	4	8
Senior high school	33	66
Collage	13	26
Profession		
Civil officer	4	8
Private employees	3	6
Housewife	37	74
Others	6	12
Income		
<2,800,000	36	72
≥2,800,000	14	28
Experience of getting counseling		
Ever	14	28
Never	36	72
Experience of pap-smear/VIA		
Ever	3	94
Never	47	6
Use an antiseptic to clean the vagina		
Yes	18	36
No	32	64
Place of detection tests		
Unreachable	17	34
Reachable	33	66
Total	50	100

Description of knowledge and attitudes before and after WEIC

In this study, the results of the pre-test knowledge of the majority of respondents were in a good category (27 people, 54%), and the results of the post-test knowledge, the majority of respondents were in a good category, 42 people 84%. The results of this study obtained the attitudes of respondents on early detection of cervical cancer before being given WEIC (Pre-test) showing that the majority of respondents were in the sufficient category 36 people 72%, and the results of attitudes after being given WEIC (Post-test) the majority of respondents were in the good category 35 people 70% (Table 2).

Knowledge level of paired sample t-test before and after WEIC was carried out

Statistical test using paired sample t-test to test whether there were differences in knowledge and

Table 2: Description of knowledge and attitudes before and after WEIC (n = 50)

Variable	Pre-test		Post-test	
	F	%	F	%
Knowledge				
Good	27	54	42	84
Sufficient	15	30	8	16
Poor	8	16	0	0
Attitudes				
Good	14	28	35	70
Sufficient	36	72	15	30
Poor	0	0	0	0

attitudes of early detection of cervical cancer before and after WEIC. The results of the knowledge before the WEIC were obtained an average value of 2.38 (SD = 753), and after the WEIC was carried out the average value was 2.84 (SD = 370), and after being analyzed with the paired sample t-test that the mean value was obtained -460 (SD = 706), t-4.608 and p = 0.001 (p < 0.05) means that HA is accepted, there was an effect of CEI through WhatsApp on knowledge of early cancer detection after WEIC (Table 3).

Table 3: Knowledge level of paired sample t-test before and after WEIC was carried out (N5 = 0)

Variable	Category	Mean	SD	T	p-value
Knowledge	Pre-test	2.38	753	-4.608	0.001
	Post-test	2.84	370		

Attitude level of paired sample t-test before and after WEIC was conducted

The results of attitudes on cervical cancer examination of women before the WEIC were obtained that the mean value was 2.28 (SD = 454) and after the mean value was 2.70 (SD = 463). After analyzing using the paired sample t-test, the mean value was -420 (SD = 499), t -5,957, and p = 0.001 (p < 0.05) meaning that Ha was accepted, there was an effect of WEIC on knowledge and attitudes of early cancer detection cervical in women of child-bearing age in Medan (Table 4).

Table 4: Attitude level of paired sample t-test before and after WEIC was conducted (n = 50)

Variable	Category	Mean	SD	T	p-value
Attitude	Pre-test	2.28	454	-5.957	0.001
	Post-test	2.70	463		

Discussion

The results of this study found that the value of knowledge through the paired sample t-test p = 0.001 indicating that there is an effect of WEIC on knowledge with 14 days of education. According to research conducted by Jumaida et al., it shows that there is an effect of cervical cancer counseling on the knowledge of women of child-bearing age, where the results of

the study using statistical tests obtained a $p = 0,001 < \alpha = 0.05$) [8]. Furthermore, another study said that the results of statistical tests with the Wilcoxon test obtained a $p = 0.001$ ($p < 0.05$), meaning that H_a was accepted and there was a difference in knowledge before and after WhatsApp video-based counseling was carried out. The researchers assumed that the respondents' knowledge could increase because the respondents had already received information about the early detection of cervical cancer [9].

One of the social media that is often used is WhatsApp. The WhatsApp application can be done by providing messages that contain health services, health information so that people can have higher access to health information. Educational programs through WhatsApp can be optimized by sending educational text messages or picture messages. Ease of access to information is also one of the factors that affect the increase in knowledge, attitudes, and lead to actions or practices of respondents [10].

The results of the attitude study showed that there was an increase, where before the WEIC was carried out the majority of respondents had sufficient attitudes, but after the educational intervention through WhatsApp, the majority of respondents' attitudes became good. Even so, some respondents still had attitudes in a sufficient category. According to research by Nisah *et al.* said that the formation of attitudes is influenced by several things, namely, a person's personal experience, where the experience is related to psychological objects. The response will be one of the bases for forming an attitude to be able to have an appreciation [11].

Based on the results of the study, the attitude value of paired sample t-test $p = 0.001$ means that there is an effect of CEI through WhatsApp on knowledge and attitudes of early detection of cervical cancer with 14 days of education for 2 h using WhatsApp media. The researchers assumed that the respondent's attitude toward cervical cancer early detection could increase due to the respondent's curiosity and also because the respondent's knowledge had become good. Based on research conducted by Kholisotin, statistical results with the Wilcoxon test obtained $p = 0.001$ ($p < 0.005$), meaning that there was an effect of differences in attitudes before and after WhatsApp video-based counseling which was carried out [9].

The study conducted by Putri showed that there was a change in attitude before and after being given health counseling, where there was a mean value before counseling of 25.28 (SD = 3.833) and after an average value of 28.66 (SD = 2.353). After being analyzed using the paired sample t-test, the mean value was -3.380 (SD + 3.568), $p = 0.001$ ($p < 0.05$) meaning that H_a was accepted [12]. Besides, according to study conducted by Siregar, the results obtained using a

statistical test with a value of $t = -6.174$ with a $p = 0.001$ ($\alpha = 0.05$) means that H_a is accepted, there is an effect of WhatsApp education on early detection of cervical cancer before and already given [13].

The low level of knowledge about cervical cancer and the detection of VIA is inhibition of increasing awareness and changing human attitudes. Conversely, good knowledge of women of child-bearing age will form a positive attitude toward the early detection of cervical cancer [14]. The results of study conducted by Maharsie and Indarwati found that there is a relationship between knowledge of cervical cancer and the participation of mothers in carrying out the VIA test in Surakarta, it is found that mothers who carry out VIA examinations are more likely to have high knowledge. Meanwhile, many mothers who have low knowledge do not undergo VIA examinations [15].

According to study conducted by Saraswati *et al.*, easy access to information is also one of the factors that affect knowledge, attitudes, and actions. This convenience is obtained to be the beginning of the smooth communication of information sources [16]. Pozin and Nawi said that the WhatsApp application is a tool that can increase the efficiency of various information and improve the quality of communication as a mechanism for disseminating information [17].

Conclusions

There was an effect of knowledge and attitude of women of bearing age before and after WEIC which was carried out.

Suggestions

The results of this study can be carried out as a basis for nurses who will intervene on communication, information, and education on WhatsApp on knowledge and attitudes of early detection of cervical cancer in women of child-bearing age to prevent cervical cancer. It is hoped that this research can become a new reference for adding curriculum in nursing to add to one nursing intervention. This research can be used as a reference for future researchers. It is recommended that further researchers need to do WEIC on the participation of women of child-bearing age in the early detection of cervical cancer with a larger number of respondents.

Ethical Consideration

The Research Ethics Committee from the Commission of the Health Research Ethics Universitas Sumatera Utara No.31/KEP/USU/2020.

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