The effect of education with audiovisual, booklet, and Whatsapp media on knowledge and attitude of fertile age in doing early detection of IVA test in Medan, North Sumatra

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Abstract. Cervical cancer becomes a cause of high maternal mortality. To prevent it can be done by screening Visual Inspection with Acetic Acid (IVA). The aim to analyze the effect of education applying the Health Belief Model using the audiovisual, booklet, WhatsApp media on knowledge and attitudes in conducting IVA examinations. The study used a quasi-experimental (two-group pre-post test without a control group). The sample were women of childbearing age who had never done an IVA examination before using purposive sampling with a sample size of 100 respondents, which were divided into 2 treatment groups, namely group 1 with audiovisual and booklets, and group 2 with WhatsApp. Health education used audiovisual, booklets and WhatsApp media. Data analyzed using a paired sample t-test. The results showed that there was an effect of education using audiovisual, booklets and WhatsApp media on the knowledge and attitude of early detection to do an IVA test. Increased knowledge, attitudes, health trust greater than before treatment. External variables such as age, education, occupation, income, prior information, and affordability of the IVA Test early detection site influence attitudes in improving behavior.

1. Introduction
Cervical cancer is the most common health problem in women after breast cancer. According to the Ministry of the Health Republic of Indonesia said that cervical cancer is the severity of the cervix, which is one-third of the bottom of the uterus, convex, bumpy and related to the vagina through the outside of the uterus. The cause is human papillomavirus infection and mostly occurs in women of childbearing age and due to cervical cancer can cause death [1]. The incidence rate in women aged over 15 years is a population at high risk of cervical cancer, amounting to 89.07 million women. According to the Catala Institute d’Oncologia/ ICO said that the incident of cervical cancer at attacks women of childbearing age of 15-44 years [2].

According to International Agency for Research on Cancer (IARC) said that the number of cervical cancers in developed countries is 35,500 deaths and in developing countries 444,500 new events and 230,200 deaths. Indonesia is ranks 4th in the highest number of cervical cancer cases after Cambodia 23.8%, Myanmar 20.6%, Thailand 17.8% with a total of 17.3% per 100,000 women [3]. The number of cervical cancer cases in Indonesia there are 98,692 cases followed by breast cancer there are 61,682 cases. Riau Islands, North Maluku, Yogyakarta has the highest number of cervical cancer cases 1.5%, while North Sumatra has a 0.7% cervical cancer cases with 4,694 people with cervical cancer [4].

Handling and treatment before the occurrence of cervical cancer is still a public health problem in Indonesia. The Chairman of the Indonesian Cancer Foundation estimates that 15,000 new patients a
year and 8,000 patients die each year. Therefore, this detection before cervical cancer needs to be primary. [5] Women who have sex have a risk of cervical cancer. Therefore, the detection of cervical cancer with the IVA test needs to be done as soon as possible after having sexual intercourse. An examination is not only once in a lifetime, but it is carried out regularly until the age of 70 years.[6] One strategy to change behaviour, such as preventing cervical cancer by providing information through health education that can increase public knowledge about healthy behaviour [7].

The study by Khademolhosseini et al. said that health education by applying the Health Belief Model is effective in increasing women's participation in pap-smear tests. [8] This is also supported by Shojaeizaddeh, et al. and the theory by Glanz, et al. revealed that health education by applying the Health Belief Model effectively enhances participants’ knowledge, changes health beliefs and enhances their behaviour regarding screening programs. The rationale of the Health Belief Model is based on the behaviour of people who want to change negative health behaviours, prevent disease, and maintain health. Education can be given using several media, such as audiovisual, booklets and WhatsApp [9,10].

Health education using audiovisual media can increase women's knowledge and participation in cervical cancer early detection program, namely IVA. Booklets can also influence knowledge and attitude enhancement, compared to visual media such as posters. Media booklets are used to encourage someone's desire to know then explore and finally get a good understanding and incentive to do something new, and audiovisual media to provide stimulus to hearing and vision so that the results obtained can be maximized [7].

Besides for audiovisual and booklet media which are direct face-to-face health education media, WhatsApp media can also be used as one of the face-to-face health education media. The aim of women of childbearing age gains knowledge to detect cervical cancer early. Whatsapp will be the most popular application and will be used by all Indonesian people. The characteristic of WhatsApp instant messaging application compared to other instant messaging applications is that it has a very interesting and practical login mechanism. We just need to save someone's cellphone number on our smartphone device that is connected to the internet. The number that we have stored in the contact will be linked to these contacts who are also both using WhatsApp. WhatsApp is also an application that is used without incurring message costs because this application switches to the sophistication of the internet by having a quota of people who can send messages, video calls, share files or news and information without charge. It can be easier for researchers to send messages in the form of messages or shape of the image so that respondents can see how the shape of the tools when a pap-smear or IVA test is done.

In this study, researchers conducted a health education intervention by applying the Health Belief Model using the audiovisual, booklet, and WhatsApp to determine their effectiveness in the behaviour of women in conducting IVA screening in the Polonia and Padang Bulan in Medan.

2. Methods
The study was quasi-experimental with two group pre-post tests without a control group. This study conducted in the working area of Polonia and Padang Bulan Public Health Centre Medan. The sample was 100 respondents by purposive sampling, which were divided into 2 treatment groups, each group amounting to 50 respondents. Health education in group 1 with audiovisual and booklet media with a total duration of 60 minutes with a detailed explanation of the booklet's 30 minutes and participants were allowed to read for 20 minutes, and audiovisual media in the form of videos about cervical cancer, prevention, and examination of cervical cancer that lasts 10 minutes. Group 2 was applied by providing health education with WhatsApp media for 14 days.

Health education with audiovisual, booklets and, WhatsApp media, are providing information about cervical cancer, prevention of cervical cancer, and early detection of cervical cancer with the IVA test. Media Knowledge and attitude were measured by a questionnaire that had been tested for validity and reliability by previous researchers with alpha value results knowledge variable 0.90 and alpha value attitude variable 0.9912, the behaviour was assessed by giving a questionnaire respondent
response sheet. The data were analysed with a univariate test, bivariate test and, multivariate test. Data normality test was performed using the Kolmogorov-Smirnov test. Thirteen data analyzed using paired sample hypothesis testing (paired sample t-test) pre and post knowledge and attitudes. This study has received ethical approval from the Research Ethics Commission of the Faculty of Nursing, University of North Sumatra.

3. Results

3.1. Characteristics of the respondents

The majority of respondents based on age in group 1 was 36-45 years as many as 30 (60%), and group 2 as many as 25(50%), based on married age the majority < 25 years in groups 1 was 28 (56%), and group 2 as many as 27(54%), the majority of the number of children <2 in groups 1 was 29 (58%), group 2 as many as 32(64%), married status in groups 1 and 2 the majority with married status as much 49 people (98%), and 49 people (98), the majority of the education level was the senior high school in groups 1 and 2 were 28 people (56%) and 29 people (58%), the majority of respondents work as housewives in groups 1 and 2 as many as 46 people (92%), and 39 people (78%), the majority of respondents' income >Rp. 2,000,000 in groups 1 and 2 were 28 people (56%) and 42 people (84%), and the majority of experience gained information in groups 1 and 2 that were 39 people (78%) and 40 people (80%), it can be seen in Table 1.

| Characteristics        | Group 1  | Group 2  |
|------------------------|----------|----------|
|                         | Frequency (n) | Percentage (%) | Frequency (n) | Percentage (%) |
| Ages                   |           |           |               |               |
| 17-25 years            | 4         | 8         | 5             | 10            |
| 26-35 years            | 13        | 26        | 17            | 34            |
| 36-45 years            | 30        | 60        | 25            | 50            |
| 46-49 years            | 3         | 6         | 3             | 6             |
| Married ages           |           |           |               |               |
| < 25 years             | 38        | 76        | 27            | 54            |
| > 25 years             | 12        | 24        | 23            | 46            |
| Number of children     |           |           |               |               |
| < 2                    | 21        | 42        | 18            | 36            |
| > 2                    | 29        | 58        | 32            | 64            |
| Married status         |           |           |               |               |
| Married                | 49        | 98        | 49            | 98            |
| Widow                  | 1         | 2         | 1             | 2             |
| Educational            |           |           |               |               |
| Primary school         | 6         | 12        | 5             | 10            |
| Junior high school     | 9         | 18        | 10            | 20            |
| Senior high school     | 28        | 56        | 29            | 58            |
| College                | 7         | 14        | 6             | 12            |
| Work                   |           |           |               |               |
| Civil officer          | 2         | 4         | -             | 0             |
| Housewives             | 46        | 92        | 39            | 78            |
| Others                 | 2         | 4         | 11            | 22            |
| Income                 |           |           |               |               |
| < Rp. 2,000,000        | 22        | 44        | 8             | 16            |
| ≥ Rp. 2,000,000        | 28        | 56        | 42            | 84            |
| Experience gained information |       |           |               |               |
| Yes                    | 11        | 22        | 10            | 20            |
| No                     | 39        | 68        | 40            | 80            |
3.2. Level of knowledge and attitude from pre- and post-test in group 1 and 2

The level of knowledge in group 1 majority of the pre-test was sufficient category as many as 32 (64%) and post-test was majority good category were 49 (98%). The majority of group 1 attitudes in the pre-test were negative category as many as 46 (92%) and post-test was negative category 32 (98%). The level of knowledge in group 2 in the majority of the pre-test group in the category of less was 36 (72%) and a post-test majority was sufficient category 23 (46%). The attitudes in group 2 he majority pre-test were negative category were 35 (70%) and post-test the majority of attitudes was negative category 15 (30%), it can be seen in Table 2 below.

| Variable          | Group 1            |               | Group 2            |               |
|-------------------|--------------------|---------------|--------------------|---------------|
|                   | Pre-test           | Post-test     | Pre-test           | Post-test     |
|                   | n                  | %             | n                  | %             |
| Knowledge         |                    |               |                    |               |
| Good              | 6                  | 12            | 49                 | 98            |
| Sufficient        | 32                 | 64            | 1                  | 2             |
| Less              | 12                 | 24            | 0                  | 0             |
| Attitude          |                    |               |                    |               |
| Positive          | 4                  | 8             | 18                 | 36            |
| Negative          | 46                 | 92            | 32                 | 64            |

3.3. Paired sample t-test knowledge in group 1 and group 2

The results of knowledge in group 1 before counselling the average value of 25.76 (SD=4.123), and after counselling the average value of 37.48 (SD=2.644), and after being analysed by Paired sample t-test obtained a mean value of -11.720 (SD=4.664), t=-17.767, and p=0.000 (p<0.05). The results of knowledge in group 2 before education the average value is 25.68 (SD=4.880), and after analysed with paired t-test there was a mean value of 32.74 (SD=4,313), based on statistical tests obtained a value of t=-14,003 with a p-value of 0.000 (α=0.05) in groups 1 and 2 means that Ha was accepted, there was an educational effect on the knowledge of early detection of cervical cancer in doing IVA tests in women of childbearing age. It can be seen in Table 3 below.

| Group    | Category | Mean | SD   | t    | p-value |
|----------|----------|------|------|------|---------|
|          | Pre-test | 25.76| 4.123| -17.767| 0.000   |
|          | Post-test| 37.48| 2.644|       |         |
|          | Pre-test | 25.68| 4.880| -14.003| 0.000   |
|          | Post-test| 32.74| 4.313|       |         |

3.4. Paired sample t-test attitude in group 1 and group 2

The results of the attitude in group 1 before education showed that the average value of 25.28 (SD=3.833) and after an average value of 28.66 (SD = 2.353). After being analysed using a paired sample t-test, the average value was -3.380 (SD=3.568), p=0.000 (p<0.05). The results of the attitude in group 2 before education the average value was 28.74 (SD=4,251), and after being analysed by paired sample t-test, there was a mean value of 34.02 (SD=4.879) based on statistical tests, the value of t=-6.174 with a p-value of 0.000 (α=0.05) in groups 1 and 2 means that Ha was accepted, there was an educational effect on the attitude of early detection of cervical cancer in conducting IVA tests in women of childbearing age. It can be seen in Table 4.
Table 4. Paired sample t-test attitude in group 1 and group 2

| Group   | Category | Mean  | SD    | t     | p-value |
|---------|----------|-------|-------|-------|---------|
| Group 1 | Pre-test | 25.28 | 3.833 | -6.699| 0.000   |
|         | Post-test| 28.66 | 2.353 |       |         |
| Group 2 | Pre-test | 28.74 | 4.251 | -6174 | 0.000   |
|         | Post-test| 34.02 | 4.679 |       |         |

4. Discussions
This study was conducted in women of childbearing age, and the majority aged 35-45 years, according to the study of Darnindro said that women aged 40-45 years are at high risk of cervical cancer [11]. The data is supported by research conducted by Wall in Mexico which aims to modify women's inhibitors in the early detection of cervical cancer showing that women of childbearing age are at risk for cervical cancer [12]. The study by Darnindro in Jakarta also found that women aged 40 years and over have a risk of cervical cancer. Age is one of the factors that influence knowledge. The older age of knowledge will increase [11]. Hasibuan also explains that age will affect one's physical, mental, workability and responsibilities [13].

The results showed that more than half of the respondents' education was senior high school. Education serves as a means of empowering individuals to increase knowledge in the context of developing their potential and therefore respondents who have the knowledge and higher education will always develop insights and follow developments especially about cervical cancer. This can be done by utilizing available media because more information is obtained. This is following Desmita said that the level of formal education is related to the utilization of information sources [14]. In this study explained that the level of education will influence respondents to know more about an illness, and can make the decision to do the screening even vaccinating HPV for themselves and their children. Education helps women in improving behaviour to achieve optimal health.

Economic status influences the form, role given in the family and is a predisposing factor for the formation of health behaviour. [15] Good socioeconomic status will increase one's knowledge. The majority of respondents work as housewives. The majority of respondents have never gotten health information about cervical cancer. According to research conducted by Purnamaningrum, health information is one of the behavioral change strategies because individuals receive health messages that are useful for themselves. [16] Knowledge of cervical cancer and cervical cancer screening with the IVA method is an important domain for the formation of actions in the form of female participation in conducting IVA screening.

Increased knowledge is a supporter for the formation of positive attitudes towards change including early detection of cervical cancer behavior, however in several studies found the opposite, such as research conducted by Rahmayanti on the effectiveness of health education on the knowledge and attitudes of mothers in the stimulation of the development of toddler at Zaenal Abidin Hospital Banda Aceh showed that there was no influence between economic status on mother's knowledge in the stimulation of toddler development [17].

Efforts to streamline the intrinsic factors of the respondents were carried out by providing education carried out with various stimulations. Education with audiovisual, booklet and WhatsApp media provides learning to respondents so there is a learning/education process that can improve attitudes and behavior. A study conducted by Wall said that to modify inhibiting factors for women's compliance in the early detection of cervical cancer get data that education about cervical cancer and pap smear affects individuals to have regular screening [12]. The success of health education is influenced by several factors, one of which is the media. In this study the media used were audiovisual, booklet, and WhatsApp. Through this media, it is expected that respondents remember 60% of the information provided [18]. The study by Peate et al. booklet as an effective learning medium, is evidenced by 91% of respondents feeling satisfied with the information provided and they can understand the material presented, 95% of respondents recommend booklets to others as a learning tool [19].
In this study, it was found that there was increased knowledge after being given an educational intervention. In line with research conducted by Chinwe and Udenebont said that the respondents relatively had good knowledge about cervical cancer and cervical cancer screening after being given health education [20]. Knowledge can positively influence and shape beliefs so that a person can behave according to his beliefs obtained through health education.

The results showed a significant increase in attitude on both groups at pre-post test 1, pre-post test 2 and an average increase in attitude in group 2 compared to group 1. The results of this study support previous research which said that education had an influence which is positive towards improving attitudes of respondents about cervical cancer and cervical cancer screening [20]. Increased knowledge can stimulate respondents to have a positive attitude. A positive attitude can stimulate respondents to behave positively by doing early detection of cervical cancer.

Education is a combination of learning experiences designed using various methods to change the attitudes of individuals and communities by increasing their understanding of health and disease. Appropriate methods of providing information will stimulate positive health attitudes in efforts to improve health. According to Janz et al. Cit Frankenfeld., Daryani et al., the health belief or Health Belief Model can create the desire of the community to take preventative measures, seek health services and control disease conditions and the use of audiovisual media such as videos, films have an effect on increasing respondents' health confidence in doing the screening [19,21].

Education, provided to individuals or the community, is expected to increase their confidence to behave more healthy lives by being able to know the risk of the disease they have, the severity of an illness, the benefits of preventing disease, seeking health services to check their health and conduct healthy behavior. Also, education can increase their confidence that they are at risk of cervical cancer so that they will seek health services to screen for cervical cancer. There are still some women who still have obstacles to increase their health confidence in screening such as the shame of doing an examination, afraid that if the results of the examination are positive, fear of being put into an instrument in genitalia. The results of this study are in line with Purnamaningrum's research, that obstacles such as shame and fear become a strong factor in respondents' confidence in screening. [16] On the component of perceived severity, perceived benefits and obstacles do not result in an average increase. This can be caused by several factors such as, some respondents revealed that they feel healthy and do not need to examine if there are no symptoms. Findings IVA examination can be done at the public health center as a place of basic health services.

5. Conclusions
There was an educational effect on the knowledge of early detection of cervical cancer in conducting IVA tests in women of childbearing age in Medan, North Sumatra. There was an educational effect on the attitude of early detection of cervical cancer in conducting IVA tests in women of childbearing age in Medan, North Sumatra.

6. Suggestions
It is expected to further optimize preventive efforts, especially regarding cervical cancer and IVA test in the form of health education with a variety of approaches and various supporting media in educating early detection of cervical cancer, as well as broadening the target of health promotion not only for the mother but also involving her husband and family so that later also supports his wife and daughter.

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