



The Effectiveness of Health Education Using Powerpoint and Audio Visual Media on Increasing the Knowledge of Women of Reproductive Age About Cervical Cancer in the Working Area of Gandasuli Public Health Center, South Bacan District in 2023

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Abstract : According to a 2021 report from the Gandasuli Community Health Center, 342 women of childbearing age underwent the VIA test, and 3 experienced cervical cancer. Health education can be conducted using various methods and media/tools. One form of message delivery in communication and health education is counseling. The purpose of this study was to determine the effectiveness of health counseling using PowerPoint and audiovisual media on increasing women of childbearing age's knowledge about cervical cancer. This study used a quasi-experimental method with a two-group pretest-posttest design. The population in the study was all 620 women who visited the women's health center. The sample size was 30 women divided into two groups: 15 in group 1 and 15 in group 2. The sampling technique used was accidental sampling. Data analysis included univariate and bivariate analysis with a paired t-test to examine the relationship between two variables suspected of being related or correlated. The average knowledge of WUS before being given health counseling with power point media was 13.93 and after being given counseling with power point media was 18.33 while in the audiovisual group before being given health counseling with audio visual media was 13.80 and after being given counseling with audio visual media was 18.20. The results of the bivariate analysis showed a p-value of 0.000. There was no difference in the effectiveness of health counseling between using power point media and audiovisual media on increasing WUS knowledge about cervical cancer. It is expected to increase the knowledge of women of childbearing age, families and communities about cervical cancer so that WUS are motivated to carry out early examinations to prevent cervical cancer.

Keywords: Audiovisual Media; Cervical Cancer; Health Counseling; Knowledge Improvement; Powerpoint Media.

1. INTRODUCTION

Cancer is one of the leading causes of death, including cervical cancer. The cervix is the lower part of the uterus connected to the vagina and responsible for producing mucus. Cervical cancer begins in a woman's cervix (the entrance from the vagina to the uterus). Cervical cancer is a primary cancer of the cervix that originates from epithelial metaplasia in the squamous-columnar junction (SCC), the transition area between the vaginal mucosa and the cervical canal mucosa. It is caused by the Human Papillomavirus (HPV). Approximately 130 types of HPV have been identified, and more than 40 of these can infect humans (Intan et al., 2019). The primary causes of cervical cancer are HPV types 16 and 18 (Johana, 2018).

According to 2019 data from the World Health Organization, approximately 7.9 percent of all cancer deaths in women are due to cervical cancer. WHO data from 2019 showed that the highest incidence of cervical cancer occurred in sub-Saharan Africa, Latin America and the Caribbean, Central Asia, South Asia, and Southeast Asia. The WHO also explained that cervical cancer is the leading cause of cancer death in women. Meanwhile, the number of cervical cancer cases worldwide increases by approximately 7 million annually, with two-thirds of these cases in developing countries like Indonesia (Iasminiantari, 2018). In Indonesia,

cervical cancer cases are very high, with the highest incidence rate in women being breast cancer, at 44 cases per 100,000 population. The number of new cancer cases discovered in 2020 was 396,914, of which 9.2% (36,633) were cervical cancer. The incidence of cervical cancer in Indonesia reached 24.4 cases per 100,000 population, with an average mortality rate of 14.4 cases per 100,000 population. Cervical cancer is the second leading cause of death in women (GCO, 2020). According to a 2021 report from the Gandasuli Community Health Center in South Bacan District, 342 married women of childbearing age underwent a VIA test, and 3 experienced cervical cancer (Gandasuli Community Health Center, 2021).

Cervical cancer cases (99%) are associated with Human Papillomavirus (HPV) infection, a virus that can be transmitted through sexual contact. HPV infections are mostly self-limiting and asymptomatic, but prolonged infection can lead to cervical cancer in women. Several other factors are implicated in the cause of cervical cancer, such as low socioeconomic status, young age at first sexual intercourse, multiple sexual partners, early age at first pregnancy, hormonal contraception, multiple sexual partners, and tobacco use (Yanti, 2021).

Cervical cancer is a very dangerous disease; therefore, treatment and prevention measures are essential to reduce its incidence (Ningrum and Fajarsari, 2013). The Indonesian government, through the Ministry of Health, has undertaken several efforts. Screening is one of the programs integrated into community health center activities for women aged 30-50. Preventive measures for cervical cancer include early detection (screening) using Visual Inspection with Acetic Acid (VIA), Pap smears, and clinical breast examinations (Sadanis) (Pangribowo, 2019). Several preventative measures are available, including early detection through Visual Inspection with Acetic Acid (VIA) (Ministry of Health of the Republic of Indonesia, 2018). This method can be performed at all levels of health care by trained personnel, including midwives (Sawitri and Sunarsih, 2018).

Women with good knowledge of cervical cancer screening, easy access to information, and the absence of cultural barriers are significantly associated with early cervical cancer detection (La Patilaiya et al., 2021). Efforts to improve the knowledge of women of childbearing age about cervical cancer screening include communication, information, and education through various media such as videos, leaflets, and so on (Azizah et al., 2021). Women of childbearing age who undergo early cervical cancer screening are those with good knowledge after receiving health education using various media (Efni & Fatmawati, 2021).

Health promotion is essentially an activity or business that conveys health messages to women of childbearing age, groups, or individuals, enabling them to gain knowledge about better health. Information can be presented and provided through various media, including newspapers, magazines, electronic media, television, radio, and film. All of these media are effective communication tools that directly connect with and impact the community. Health promotion efforts carried out by health workers are necessary to combat the increasing number of women of childbearing age suffering from cervical cancer. Health education can be delivered in various ways, both face-to-face (offline) and online (Ona Adesta & Nua, 2021).

Health education can be delivered using a variety of methods and media/tools. One form of message delivery in health communication and education is counseling. Research conducted by (Salsabila et al., 2018) found that counseling has proven effective in increasing respondents' knowledge.

One medium for counseling is audiovisual media. Video is a practical and entertaining electronic audiovisual medium suitable for learning. Videos can accurately depict a process and can be viewed repeatedly. They also encourage and motivate students to continue watching (Arsyad, 2015). Audiovisual media is highly suitable for counseling. Research (Imran, 2017) found that using video media in his study increased adolescents' knowledge by 84%. Counseling will be more effective if it uses engaging delivery media. One such medium is video. Previous research has shown that video-based counseling impacts knowledge. Previous research also indicates that video or film-based counseling impacts mothers' attitudes toward VIA detection.

Research (Tekle et al., 2020) in Southern Ethiopia showed that women who do not undergo cervical cancer screening tend to have poor knowledge, attitudes, and behaviors regarding cervical cancer screening. However, high levels of knowledge about the benefits of screening, strong motivation, and low barriers do not influence women in Saudi Arabia's cervical cancer screening. This is due to Saudi Arabian women's low awareness of the disease and the limited availability of screening tests in tertiary care hospitals (Aldohaian et al., 2019).

One study conducted by Martiningsih (2018) found that health promotion can increase knowledge about cervical cancer and women's participation in early detection programs. A study by Warni Firdayanti (2017) found a significant difference between before and after health promotion with leaflets on knowledge, attitudes, behavior, and motivation of community leaders regarding cervical cancer in women aged 20-59 years. A study by Alin Septianingrum (2017) also found a relationship between knowledge of cervical cancer among women of childbearing age and their VIA test behavior at the Pisangan Ciputat Community Health Center.

2. RESEARCH METHOD

According to Sujarweni (2014), research design is essentially a strategy to achieve predetermined research objectives and serves as a guideline or decision-maker for researchers throughout the research process. This research design is quantitative, employing a Two-Group Pretest-Posttest design, an experimental design conducted on two different groups receiving different treatments. This model is more sophisticated than the first model because it uses an initial pretest, followed by another posttest to determine the effects of the treatment. This allows for a more precise understanding of the experimental effect. The first group of respondents will receive counseling using PowerPoint, while the second group will receive counseling using audiovisual media. The purpose of this study was to identify the comparative effectiveness of health counseling using PowerPoint and audiovisual media on increasing women of childbearing age's (WUS) knowledge about cervical cancer. The detailed two-group pretest-posttest design is as follows.

Table 1. Research Design

Group	<i>Pre-Tes</i>	Treatment	<i>Post-Test</i>
Group 1	O ₁	X ₁	O ₂
Group 2	O ₃	X ₂	O ₄

Description:

O1: Knowledge score in group 1 before health education using PowerPoint media (pre-test)

O2: Knowledge score in group 1 after health education using PowerPoint media (post-test)

X1: Health education using PowerPoint media

O3: Knowledge score in group 2 before health education using audio-visual media (pre-test)

O4: Knowledge score in group 2 after health education using audio-visual media (post-test)

X2: Health education using audio-visual media

3. RESULTS AND DISCUSSION

Results

In this chapter, the researcher presents the research results and discussion of the data collection, entitled "The Effectiveness of Health Education Using PowerPoint and Audiovisual Media on Increasing Women of Childbearing Age (WUS) Knowledge about Cervical Cancer in the Gandasuli Community Health Center (UPT Puskesmas) Work Area, South Bacan District, 2023." This research was conducted in July 2023 in the Gandasuli Community Health

Center (UPT Puskesmas) Work Area, South Bacan District. A sample of 30 women of childbearing age was divided into two groups: 15 women of childbearing age who received education using PowerPoint and 15 women of childbearing age who received education using audiovisual media. The results are presented in two sections: univariate and bivariate results. The univariate results present the frequency distribution of knowledge before and after the intervention, while the bivariate results present the effectiveness of health education using PowerPoint and audiovisual media on increasing women of childbearing age about cervical cancer.

Univariate Results

The following univariate analysis illustrates the frequency distribution of respondents based on knowledge across the respondent groups.

Average Knowledge of Women of Childbearing Age Before and After PowerPoint Counseling

Table 2. Average Knowledge of Women of Childbearing Age Before and After PowerPoint Counseling

Results	PowerPoint Group					Mean Difference
	N	Min	Max	Mean	SD	
Pre-test	15	9	18	13,93	2,282	4,4
Post-Test	15	15	20	18,33	1,397	

The table above shows that of the 15 respondents in the PowerPoint group before being given counseling, the lowest knowledge score was 9, the highest score was 18, and the average score was 13.93. After being given health counseling with PowerPoint media, the lowest knowledge score was 15, the highest score was 20, and the average score was 18.33. And there was a difference in the average score between before and after being given counseling of 4.4.

Table 3. Average Knowledge of Women of Childbearing Age Before and After Audiovisual Media Counseling

Results	Audiovisual Group					Mean Difference
	N	Min	Max	Mean	SD	
Pre-test	15	11	17	13,80	1,612	4,4
Post-Test	15	15	20	18,20	1,373	

Based on Table 3 shows that of the 15 respondents in the audio-visual group before being given counseling, the lowest knowledge score was 11, the highest score was 17, and the average score was 13.80. After being given health counseling with audio-visual media, the lowest knowledge score was 15, the highest score was 20, and the average score was 18.20, and there was a difference in the average score between before and after being given counseling of 4.4.

Bivariate Results

Bivariate analysis was conducted to determine whether there were differences in pre-test and post-test results between the PowerPoint and Tepid Sponge groups, as well as differences in post-test results between the PowerPoint and Tepid Sponge groups. After testing the data for normality using SPSS v.25 with the Shapiro-Wilk test, the results were as follows:

Table 4. Normality Test Results

PowerPoint Group	N	<i>p-value</i>	Information
Pre-Tes	15	0,583	Normal
Post-Tes	15	0,092	Normal
Audio Visual Group			
Pre-Tes	15	0,842	Normal
Post-Tes	15	0,159	Normal

Based on Table 4, the *p-value* for all data is >0.05 . It can be concluded that the research data is normally distributed. Therefore, the parametric tests used for data analysis were the Paired T-test and the Independent T-test. The results are as follows:

Paired T-test Analysis Results

Table 5. Effectiveness of Health Education Using PowerPoint Media on Increasing Women of Childbearing Age's Knowledge About Cervical Cancer

Group	N	PowerPoint Group		<i>p-value</i>
		Mean	Std. Dev	
<i>Pretes</i>	15	13,93	2,282	0,000
<i>Posttest</i>	15	18,33	1,397	

Based on Table 5, the *p-value* is $0.000 < 0.05$, thus concluding that health education using PowerPoint media has proven effective in increasing women of childbearing age about cervical cancer.

Table 6. Effectiveness of Health Education Using Audio-Visual Media in Increasing Women of Childbearing Age's Knowledge about Cervical Cancer

Group	N	Audiovisual Group		<i>p-value</i>
		Mean	Std. Dev	
<i>Pretes</i>	15	13,80	1,612	0,000
<i>Posttest</i>	15	18,20	1,373	

Based on Table 6, the *p-value* is $0.000 < 0.05$, thus concluding that health education using audio-visual media has proven effective in increasing women of childbearing age about cervical cancer.

Independent Samples Test Analysis Results

Before conducting the independent sample test, the researcher first tested the data for normality, with the following results:

Table 7. Homogeneity Test

Group	N	<i>Post-Test</i>	
		Mean	<i>sig</i>
Experimental	30	18,33	0,815
Control	30	18,20	

Based on Table 3.6, the significance value for the posttest for the PowerPoint and audiovisual groups was >0.05 , thus concluding that the variance of all data groups is the same (homogeneous).

Table 8. Difference in the Effectiveness of Health Education Using PowerPoint and Audiovisual Media on Increasing Women of Childbearing Age About Cervical Cancer

Group	<i>Post-Test</i>		<i>p-value</i>	N
	Mean	Std. Dev		
PowerPoint	18,33	1,397	0,794	30
Audiovisual	18,20	1,373		

Based on Table 8, the *p-value* obtained is $0.794 < 0.05$, so it can be concluded that there is no difference in effectiveness between health education using PowerPoint media and using audiovisual media on increasing WUS knowledge about cervical cancer.

Discussion

Effectiveness of Health Education Using PowerPoint Media on Increasing Women of Childbearing Age's Knowledge of Cervical Cancer

The research results showed a *p-value* of $0.000 < 0.05$, thus concluding that health education using PowerPoint media was proven effective in increasing women of childbearing age about cervical cancer.

Cervical cancer is a very dangerous disease; therefore, treatment and prevention measures are essential to reduce its incidence (Ningrum and Fajarsari, 2013). One program integrated with activities at community health centers (Puskesmas) for women aged 30-50 is screening. Preventive efforts related to cervical cancer that have been implemented include early detection (screening) through Visual Inspection with Acetic Acid (VIA), Pap smears, and clinical breast examinations (Sadanis) (Pangribo, 2019). There are several preventative measures that can be implemented, one of which is early detection through Visual Inspection with Acetic Acid (VIA) (Ministry of Health of the Republic of Indonesia, 2018). This method can be

implemented at all levels of health care by trained personnel, including midwives (Sawitri and Sunarsih, 2018).

Health education can be delivered using a variety of methods and media/tools. One form of message delivery in health education communication and delivery is counseling. Research conducted by Salsabila et al. (2018) found that counseling is effective in increasing respondents' knowledge.

According to Green in Notoatmodjo (2014), the main goal of health counseling is to achieve three things: increasing public knowledge or attitudes, improving public behavior, and improving public health status. Health promotion is any combination of health and interventions related to economics, politics, and organizations designed to facilitate healthy behaviors and environments.

Counseling is conducted using a variety of methods and media tailored to the target audience. Conventional counseling methods, such as lectures and question-and-answer sessions, can bore and disengage the target audience, making them ineffective. Mothers need counseling that makes them happy and excited by encouraging active participation. Participatory methods, accompanied by practical exercises in selecting healthy foods, are expected to enable mothers to more easily master and develop skills in selecting healthy foods, including healthy foods for their toddlers. Participatory counseling methods provide opportunities for mothers to directly practice selecting healthy foods for toddlers, with the hope that the target audience will be more active and better able to absorb the modules and data presented. PowerPoint is a Microsoft Office platform. Microsoft PowerPoint offers several features, including adding audio, video, images, and animations to presentations, making them more engaging and lively (Saputra, 2018).

This significant influence on respondents is due to the lecture method used in this study, which used PowerPoint slides. The lecture method has advantages over other methods, namely its simplicity and effectiveness in conveying information to both highly educated and low-educated targets, and its ability to be used in large groups (Notoadmodjo, 2014). Selecting the right method during the counseling process significantly influences information delivery. In the counseling process, using PowerPoint can provide information to respondents repeatedly, ensuring a continuous flow of information, through seeing, hearing, and repeating (Fitriani, S. 2014).

This research aligns with the results of research conducted by Salsabila et al. (2018, which found that providing counseling effectively increased respondents' knowledge. Health education can be delivered using various methods and media/tools. One form of message delivery in health communication and education is counseling.

According to researchers, using PowerPoint slides simultaneously stimulates both the eyes and ears, allowing mothers to focus more on the material being presented. Conveying information through words alone is very ineffective and has the lowest intensity. The use of PowerPoint is very helpful in conveying information about cervical cancer to women of childbearing age (WUS), ensuring that the information is conveyed more clearly and accurately. This increase in knowledge occurs due to mothers' willingness to participate and understand cervical cancer prevention efforts, as they have received health information through PowerPoint counseling, as evidenced by an increase in knowledge evaluation results after the counseling.

Effectiveness of Health Education Using Audio-Visual Media on Increasing Women of Childbearing Age's Knowledge About Cervical Cancer

The study results showed a p-value of $0.000 < 0.05$, thus concluding that health education using audio-visual media was proven effective in increasing women of childbearing age about cervical cancer.

Cervical cancer prevention efforts can be achieved through primary prevention through the Human Papillomavirus (HPV) vaccine and secondary prevention through early detection. However, Indonesian women's awareness of the need for regular VIA screening remains low. In Indonesia, early detection coverage for cervical cancer cases is still less than 5%, resulting in many cases of cervical cancer that have already reached an advanced stage. This low coverage of early cervical cancer detection is related to women's low knowledge and attitudes about early cervical cancer screening (Desy Syswianti, 2019).

Most knowledge is acquired through the eyes and ears. Information delivery can be more optimal if these two senses are utilized optimally. Therefore, education will be more effective if media that optimize the eyes and ears are used. One medium for conducting counseling is audiovisual media. Video is a practical and entertaining electronic audiovisual medium, suitable for learning. Videos can accurately depict a process and can be viewed repeatedly. They also encourage and motivate students to continue watching (Arsyad, 2015). Audiovisual media are highly suitable for counseling. Research (Imran, 2017) found that using video media in their study increased adolescents' knowledge by 84%.

Counseling will be more effective if it uses engaging delivery media. One such medium is video. Previous research has shown that counseling using video media has an impact on knowledge. Previous research also indicates that counseling using video or film media impacts mothers' attitudes towards VIA detection.

This research aligns with research conducted by Tekle et al. (2020) in Southern Ethiopia, which showed that women who do not undergo cervical cancer screening tend to have poor knowledge, attitudes, and behaviors regarding cervical cancer screening. However, high levels of knowledge about the benefits of screening, strong motivation, and low barriers do not influence women in Saudi Arabia to undergo cervical cancer screening. This is due to Saudi women's low awareness of the disease and the limited availability of screening tests in tertiary care hospitals (Aldohaian et al., 2019).

Furthermore, research conducted by Martiningsih (2018) found that health promotion can increase knowledge about cervical cancer and women's participation in early detection programs. Research conducted by Warni Firdayanti (2017) found a significant difference between before and after health promotion with leaflets on the knowledge, attitudes, behavior, and motivation of community leaders regarding cervical cancer in women aged 20-59. Furthermore, research conducted by Alin Septianingrum (2017) found a relationship between knowledge about cervical cancer among women of childbearing age and VIA testing behavior at the Pisangan Ciputat Community Health Center.

According to researchers, providing cervical cancer education using audiovisual media makes the material easier for women of childbearing age to absorb and understand. Through videos, women of childbearing age can listen to information and view film images to help explain it. Interactive videos create a new experience for women of childbearing age, making the information easier to understand and retain in their memory for longer, thus enhancing their knowledge.

Differences in Effectiveness of Health Education Using PowerPoint and Audiovisual Media on Improving Women of Childbearing Age's Knowledge about Cervical Cancer

Based on the results of the study, a p-value of $0.794 < 0.05$ was obtained. It can be concluded that there is no difference in effectiveness between health education using PowerPoint and audiovisual media on improving women of childbearing age about cervical cancer.

Health promotion is essentially an activity to convey health messages to groups or individuals so they can gain knowledge about better health. Information can be presented and provided through various media, including newspapers, magazines, electronic media,

television and radio, and films. All of these media are effective communication tools that directly connect with or reach the community. Health promotion efforts carried out by health workers are necessary to combat the increasing number of women of childbearing age suffering from cervical cancer. Health education can be delivered in various ways (Ona Adesta & Nua, 2021).

Health education about cervical cancer aims to provide respondents with information about cervical cancer. By providing this information, it was found that women of childbearing age's knowledge improved after receiving health education. Counseling can be effective if it uses engaging media. One such medium is PowerPoint and audiovisual media. Previous research has shown that counseling using PowerPoint and audiovisual media significantly increases knowledge. Previous research also indicates that counseling using PowerPoint and audiovisual media, or films, also impacts mothers' attitudes toward VIA detection.

Researchers assume that the lack of difference between counseling using PowerPoint and audiovisual media does not mean that it does not improve women's knowledge; rather, the use of both media increases knowledge equally, meaning that both media are equally effective in increasing women's knowledge about cervical cancer. Therefore, there is no difference between the two in terms of knowledge enhancement.

4. CONCLUSION

Based on the data analysis and statistical calculations described in the previous chapter, the researchers can draw the following conclusions:

- 1) The average knowledge of women of childbearing age (WUS) before receiving health education using PowerPoint was 13.93, and after receiving health education using PowerPoint was 18.33.
- 2) The average knowledge of women of childbearing age (WUS) before receiving health education using audiovisual media was 13.80, and after receiving health education using audiovisual media was 18.20.
- 3) There was no difference in the effectiveness of health education using PowerPoint and audiovisual media in increasing women of childbearing age about cervical cancer, with a p-value of 0.794.

The results of this study are expected to increase the knowledge of women of childbearing age, their families, and the community regarding cervical cancer, thus motivating them to undergo early screening to prevent cervical cancer.

The results of this study are expected to be used as information for educational institutions in developing and improving the quality of education in the future, especially for students who implement midwifery care for women of childbearing age regarding cervical cancer prevention and screening.

The results of this study are expected to be used in midwifery care for women of childbearing age, providing cervical cancer screening services as early as possible, and to be more active in providing appropriate outreach to women and the community to increase knowledge about cervical cancer prevention.

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