



Enhancing awareness of breast self-examination and pap smears for early detection of breast and cervical cancer

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ABSTRACT

Reproductive health problems, especially breast cancer and cervical cancer are the most common cancers diagnosed in women in Indonesia. Currently, several testing methods to detect breast and cervical cancer early, such as breast self-examination (BSE) and pap smears, have been used to reduce cancer risk factors. However, these two methods are still not widely used. Outreach activities have been proven to increase knowledge about the importance of BSE and pap smears in women. This community service program aims to increase knowledge about the causes and symptoms of breast and cervical cancer, as well as early detection using BSE and pap smears. This service activity plan consisted of preparation, implementation, and evaluation stages. The method used consists of delivering interactive material, discussion, and practice. This activity was attended by 38 participants, consisting of women from PKK cadres in the Andir area, Ciroyom District, the majority of whom were over 35 years old. Based on the results of the post-test, this community service activity was successful in increasing participants' knowledge, attitudes, and behavior towards breast and cervical cancer as well as the early detection methods of BSE and pap smears.

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1. INTRODUCTION

Reproductive health problems, especially breast cancer and cervical cancer are the most common cancers diagnosed in women living in low and middle income countries, including Indonesia (Srinath et al., 2023). Breast cancer is the most common cancer in Indonesia, accounting for 65,858 new cases, and it has the second highest death rate after lung cancer, at 9.6 percent, or 22,430 cases. Cervical cancer is the cancer with the second highest number of new cases in Indonesia with 36,633 cases with a death rate of 9 percent (Globocan, 2020).

Around 60 percent of breast cancer and cervical cancer in Indonesia are first diagnosed at stage III or IV (Triana et al., 2023). This is due to the late detection of cancer. Early detection of cancer is important because it aims to discover the presence of cancer before symptoms develop, allowing patients to start

treatment immediately and avoid disease progression. Inadequate early detection programs contribute to the increase in the number of cases of breast cancer and cervical cancer in Indonesia as a developing country. Cancer detection programs in developing countries are disorganized due to the absence of comprehensive cancer control programs (Shah et al., 2019). This is supported by the opinion of Oeffinger et al. (2015), who stated that the death rate for breast cancer sufferers in developed countries is lower than in developing countries because they have early cancer detection programs, so patients have the opportunity to receive treatment earlier.

Currently, several screening methods have been used to detect breast and cervical cancer early to reduce cancer risk factors. Breast cancer can be detected using the BSE method, while cervical cancer can be detected using the Pap smear method (Kemenkes RI, 2019). BSE or Breast Self-Examination is a simple procedure that is carried out independently to evaluate whether there are lumps that could develop into breast cancer. BSE is known to reduce the mortality rate due to breast cancer by up to 20 percent (Adyani et al., 2022). Pap Smear is a method of examining cells taken from the cervix and then examined under a microscope (Febrianti et al., 2020). Although simple and relatively cheaper than other screening methods, these two methods are still not widely used. According to Devarapalli et al. (2018), breast and cervical cancer screening has not been widely carried out due to several barriers, such as lack of knowledge and awareness, psychological barriers such as fear and shame, structural barriers such as lack of time, and socio-cultural and religious barriers such as lack of family support.

Women with high knowledge receive cervical cancer screening more frequently than women with poor knowledge, hence it is critical to implement methods that can increase women's knowledge regarding cancer screening methods (Harwati, 2016). Outreach activities have been proven to increase knowledge about the importance of BSE and pap smears in women (Raffie et al., 2021). This activity can be carried out through posyandu which often involves women of childbearing age as one of the contributors to the incidence of breast cancer and cervical cancer. One of the posyandu in Bandung is Posyandu Sejahtera. Posyandu Sejahtera's vision is to realize the health of mothers and toddlers, while its mission is: (1) increasing the distribution of maternal and toddler health with a proactive approach; (2) Increasing knowledge about maternal and toddler health. Posyandu Sejahtera consists of 505 heads of families with 328 couples of childbearing age and 529 fertile women. Based on the results of an interview with Dewi as head of working group IV in Ciroyom Village, knowledge, awareness, and skills in carrying out BSE in Ciroyom Village as an effort to prevent early breast cancer are still very minimal. Pap smear numbers are also still relatively low. According to the head of the posyandu cadre, Posyandu Sejahtera has also never carried out outreach activities regarding cervical cancer prevention. Therefore, to increase knowledge regarding reproductive health problems, especially breast and cervical cancer at Posyandu Sejahtera, a special team is to provide education regarding the causes and symptoms of breast and cervical cancer as well as early detection using BSE and Pap smears.

According to the findings of interviews and situational analysis, Posyandu Sejahtera need extensive education on breast and cervical cancer. This community service program aims to increase knowledge about the causes and symptoms of breast and cervical cancer, as well as early detection using BSE and pap smears.

2. METHODS

Location

Posyandu Sejahtera is located on Jl. Andir Swadaya No. 80, RT 09 RW 10, Ciroyom Village, Andir District, Bandung City, West Java. This Posyandu is 7 km from Unisba and can be reached within 15

minutes of normal travel using a motorcycle. The targeted community for this empowerment program is PKK cadres from Ciroyom Village, which consists of 38 people.

Preparation Stage

The preparation stage begins with a preliminary survey of partners consisting of a situation analysis and discussion of the problems that arise and their solutions (Table 1). Next, activity proposals are made.

Table 1. Preparation stage

Description	<p>Preliminary survey</p> <ul style="list-style-type: none"> - The team conducted a preliminary survey and met with Posyandu Sejahtera administrators. - Conduct situation analysis, discuss problems that arise, identify problems, and discuss solutions to problems. - Request approval of the partner's willingness to be signed by the coordinator on a stamp. <p>Making proposals</p> <ul style="list-style-type: none"> - Conduct research and field studies, then prepare them as a proposal. - Divide tasks and assign to teams. Distribute tasks regarding the preparation of proposals. - Make activity permits. - Preparation of activity equipment.
Time	<p>Preliminary survey Third week of April 2023 Duration: 2 hours</p> <p>Making proposals First - fourth week of April 2023 Duration: 1 hour/week</p>

Implementation Stage

The implementation stage involves cooperation between both parties, namely the implementation team and the posyandu team. The methods used are counseling, discussion, and practice (Table 2). Counseling was carried out by two speakers regarding breast and cervical cancer and its prevention. The implementation stage ended with a pap smear on the participants.

Table 2. Implementation stage

Description	<p>Opening and Socialization</p> <ul style="list-style-type: none"> - Opening of PKM activities - Socialization of offline activities with health protocols. - Ice breaking and introduction of Team and Partners. <p>Medical examination</p> <ul style="list-style-type: none"> - Medical examinations are carried out by the implementing team. <p>Counseling</p> <ul style="list-style-type: none"> - Completing a pre-test to determine participants' knowledge before receiving counseling - Delivery of material regarding breast and cervical cancer and its prevention - This counseling activity is delivered using an interactive method using PowerPoint and video. - Counseling is also accompanied by discussion activities to increase participant participation. <p>Pap smear examination</p> <ul style="list-style-type: none"> - Pap smear examination was carried out on participants by the implementing team.
Time	<p>January 6, 2024 Duration: 4 hours</p>

Evaluation Stage

The evaluation stage is carried out after the activity is completed. This stage aims to determine the increase in knowledge about breast and cervical cancer after carrying out community service activities. Evaluation was carried out using the post-test method and discussion with participants (Table 3).

Table 3. Evaluation stage

Description	- Conduct a post-test to see how far the participants' knowledge and skills have improved - Carry out an evaluation of the activities that have been carried out
Time	January 6, 2024 Duration: 1 hour

3. RESULTS AND DISCUSSION

Preparation Stage

During the preparatory phase, the community service team did a preliminary survey of the PKK in Ciroyom district. This survey activity was carried out with the aim of conducting situation analysis, discussing problems that arise, identifying problems, and discussing possible solutions. According to the survey results, the problems faced by PKK women in Ciroyom Village can be divided into three categories: (1) Human Resources (HR) problems related to knowledge regarding the health of women's reproductive organs; (2) HR problems related to skills in preventing reproductive organ diseases; and (3) Problems related to the procurement of other supporting facilities. Human resource problems related to reproductive health knowledge include a lack of understanding of the overall structure and functions of female reproductive organs, diseases of female reproductive organs, and disease prevention. Skills-related human resource problem includes a lack of ability to perform breast self-examination. The problem with facilities is the low number of pap smears.

Based on these problems, a solution is developed, which serves as the foundation for the implementation of this service program. Knowledge-related human resource problems are addressed by outreach and education regarding female reproductive organs, diseases, and how to prevent them. Then, for skill-related problems the solution is to provide BSE training in an effort to avoid breast cancer. Meanwhile, the solution to problems related to supporting facilities is through the mass implementation of pap smears.



Figure 1. Participants and implementation team

Implementation Stage

This community service activity was attended by 38 participants consisting of women PKK cadres in the Andir area, Ciroyom Village (Figure 1). Activities carried out include breast and cervical cancer education, BSE training, and pap smear examinations.

Most of the participants in this activity were over 35 years old, namely 28 people (73.7 percent) (Table 4). Women at this age are classified as women of childbearing age who are susceptible to breast and cervical cancer. Women of childbearing age need to know about breast and cervical cancer and its prevention from an early age, so that they can prevent the cancer from getting worse.

Table 4. Age distribution of participants

Age	N	Percentage (%)
21-25	1	2.6
26-30	7	18.4
31-35	2	5.3
>35	28	73.7
Total	38	100.0

Before community service activities begin, participants are given a pre-test one day before to determine the extent of the participant's understanding and their willingness to take a pap smear examination. The activity began with a medical examination. Participants then received counseling delivered by two speakers. The first counseling session was delivered by Speaker 1 regarding the introduction of breast cancer and methods for early detection of breast cancer by self-examination of the breast (Breast self-exam or BSE) (Figure 2a). Participants receive an explanation of the symptoms of breast cancer and an explanation of the BSE procedural steps so that they can do it at home regularly every month. The second session of counseling was delivered by Speaker 2 regarding cervical cancer so that participants knew the causes of the disease, risk factors, and early symptoms of cervical cancer (Figure 2b). The counseling also conveyed the importance of examining the cervix as an initial step in the early detection of cervical cancer which can be done through a pap smear examination. Participants actively asked questions and engaged in discussions with the speakers to have a better understanding of breast and cervical cancer.



Figure 2. Implementation of community service activities: (a) Breast cancer counseling; (b) Cervical cancer counseling; (c) Pap smears examination

The community service activity ended with a pap smear examination of the participants (Figure 2c). The willingness to take a pap smear is asked during the pre-test. 18 people agreed to participate in the pap smear examination. Pap smear findings revealed that 17 people had no malignancy or intraepithelial lesion, whereas 1 person could not be examined due to portio erosion (Table 5). Some participants refused to take the Pap smear examination, apparently due to a lack of understanding about the necessity of cervical cancer prevention. Participants' willingness was requested before they received

education about cervical cancer and its prevention, so this is thought to have contributed to participants' unwillingness. Apart from that, feelings of embarrassment and embarrassment during the examination and fear of undesirable results can also be factors that cause participants to be unwilling to take a pap smear examination (Khairunnisa et al., 2023).

Table 5. Pap smear examination results

Results	N	Percentage (%)
Willing:		
No malignancy or intraepithelial lesion	17	44.7
Portio erosion	1	2.6
Not willing	20	52.6
Total	38	100.0

Evaluation Stage

After the community service activities are completed, participants are asked to take a post test. The purpose of holding a post test is to determine the increase in knowledge about breast and cervical cancer after counseling and training. The pre-test and post-test results are presented in Tables 6 and 7.

Table 6. Distribution of participants' knowledge, attitude, and behaviour towards BSE

Variable	Pre-Test		Post-Test	
	N	%	N	%
Knowledge about BSE				
Good	0	0	15	46.9
Average	0	0	16	50.0
Low	32	100	1	3.1
Attitude towards BSE				
Good	31	96.9	32	100
Low	1	3.1	0	0
Behavior towards BSE				
Good	9	28.1	19	59.4
Average	5	15.6	8	25.0
Low	18	56.3	5	15.6
Total	32	100	32	100.0

Knowledge about BSE is one of the main factors that supports practice. Based on Table 6, all participants lacked knowledge regarding BSE before receiving counseling. After the counseling was carried out, there was an increase in knowledge in the good category by 46.9 percent (15 people) and in the quite good category by 50 percent (16 people). This means that the counseling provided succeeded in increasing the participants' knowledge. These results are similar to research by Muchtaridi et al. (2021), which stated that there was an increase in knowledge among women in Sayang Village from 35.33 to 66.15 percent after being given socialization regarding the introduction and prevention of breast cancer. Outreach activities regarding breast cancer and its prevention have proven effective in increasing awareness and knowledge. This activity is very important to carry out so that people can recognize the symptoms of breast cancer early and receive treatment immediately. Low awareness and knowledge about the symptoms of breast cancer is related to the high number of breast cancer cases diagnosed at an advanced stage when first examined (Solikhah, 2019).

Attitude towards BSE is also an important factor that can support the practice of BSE. A positive attitude regarding BSE can increase the possibility of implementing BSE in daily life, so that women get used to observing their breasts and can more quickly realize if their breasts are abnormal (Marzouni et al., 2014). Before receiving counseling, 96.9 percent of participants had a good attitude regarding BSE. Good attitudes regarding BSE increased up to 100 percent after the counseling was implemented. These results are similar to research by [Patandianan et al. \(2015\)](#) which stated that almost all women of childbearing age in Tatanga District had a positive attitude towards BSE (95.7 percent). According to [Tuelah et al. \(2020\)](#), women of childbearing age have more mature thoughts and better awareness of BSE when compared to female students who are still in their teens, so that women of childbearing age have a high number of positive attitudes.

Behavior regarding BSE in daily life can be influenced by knowledge and attitudes towards it. Before being given counseling, the majority of participants had poor BSE behavior (53.3 percent). BSE behavior after counseling increased in the good category, from 28.1 to 59.4 percent. This means that outreach activities have been proven to increase BSE behavior in participants. There are differences of opinion regarding the relationship between BSE knowledge and attitudes towards BSE behavior. This is because BSE behavior is not only influenced by knowledge and attitudes but is also influenced by other factors such as motivation and perceptions regarding BSE practices ([Tauho et al., 2023](#)).

During the pre-test and post-test, participants were asked to choose risk factors for cervical cancer from several statements given, which included having more than one sexual partner, smoking, not having regular pap smears, having sex without using protective equipment, viral infection and infectious diseases, long-term use of birth control pills, having many children, and weak immunity. Before receiving counseling, the participants most frequently chose: having more than one sexual partner, smoking, viral infection and infectious diseases for up to 7 people and having more than one sex partner, not having regular pap smears up to 7 people. The participants' answers changed after they received counseling. A total of 16 participants (50 percent) chose: having more than one sexual partner, smoking, not having regular pap smears. This indicates that the counseling provided was successful in increasing participants' knowledge regarding risk factors for cervical cancer. Understanding the risk factors for cervical cancer helps raise knowledge about ways to prevent it, such as knowing how to identify it early, avoiding smoking or exposure to cigarettes, and receiving the HPV vaccine ([Kusumawati et al., 2016](#)). This plays a major role in reducing the number of cervical cancer cases.

Apart from risk factors, participants were also asked to choose symptoms of cervical cancer from several statements given, which included bleeding from the genitals outside of the menstrual cycle, abnormal vaginal discharge, persistent back and lower abdominal pain, pain and discomfort during sexual intercourse, bleeding from the vagina after sex, prolonged low back discomfort, blood in the stool, unexplained weight loss, heavier and longer menstrual periods, and vaginal bleeding after menopause. Before being given counseling, 4 participants chose all statements (12.5 percent). The number of participants who chose all statements increased to 9 people (28.1 percent) after being given counseling. This suggests that the counseling provided succeeded in increasing participants' knowledge about the symptoms of cervical cancer. It is very important to know the symptoms of cervical cancer, especially for women of childbearing age, so that cancer can be detected early and treated before it gets worse.

According to Table 7, almost all participants (87.5 percent) were unaware of the cervical cancer vaccination prior to counseling, however after counseling, there was an increase in the good (12.5 percent) and fairly good (34.4 percent) categories. It can be seen that there was an increase in knowledge after being given counseling. These results are similar to the research of [Kuntari et al. \(2021\)](#) which states that knowledge of the general public, especially young women and men, regarding the virus, the disease

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it causes, and the HPV vaccine is still in the low category. Different results were found in research by [Mulia et al. \(2021\)](#) which states that respondents who are nursing students have a level of knowledge in the good category of 50 percent. Based on this research, it can be seen that differences in education levels can cause differences in the level of knowledge for each person. A person's level of knowledge is influenced by the level of education, experience and information they possess.

Table 6. Distribution of participants' knowledge, attitude, and behaviour towards cervical cancer vaccine, pap smear examination, risk factors of cervical cancer, and cervical cancer prevention

Characteristics	Pre-Test		Post-Test	
	N	%	N	%
Knowledge about Cervical Cancer Vaccine				
Good	0	28.1	4	12.5
Average	4	12.5	11	34.4
Low	28	87.5	17	53.1
Knowledge About Pap Smear Examination				
Good	2	6.3	10	31.3
Average	17	53.1	12	37.5
Low	13	40.6	10	31.3
Attitudes towards risk factors for cervical cancer				
Good	30	93.8	32	100.0
Average	2	6.3	0	0.0
Low	0	0.0	0	0.0
Cervical cancer prevention behavior				
Good	28	87.5	29	90.6
Average	2	6.3	2	6.3
Low	2	6.3	1	3.1
Total	32	100	32	100.0

Before counseling, participants had average and poor knowledge of pap smear examinations, respectively 53.1 percent and 40.6 percent. After receiving counseling, knowledge in the good category increased from 6.3 to 31.3 percent. Knowledge is one of the factors causing the low number of participants who are willing to take part in pap smear examinations held during this community service activity. These results are similar to the research of [Abulizi et al. \(2018\)](#), who found that 29.3 percent of respondents knew about cervical cancer and only 7.4 percent had had a pap smear. [Harwati \(2016\)](#) found a substantial association between women's knowledge and behavior in cervical cancer screening. Cervical cancer screening is more often performed on women with high knowledge compared to those with low knowledge. Knowledge can increase awareness of doing something and later influence behavior.

Participants' attitudes towards cervical cancer risk factors before counseling were good (93.8 percent). After receiving counseling, there was an increase to 100 percent. Based on these results, it can be seen that there was an improvement in attitudes after being given counseling. These results are similar to the research of [Mulyati et al. \(2015\)](#), who found that there is a positive influence of health education through film media on respondents' attitudes with an increase in the median attitude score from 44.23 (19.23-75) to 78.85 (25-94.23). The high percentage in the good category is assumed to be impacted by the participants' ages. Most of the participants in this activity came from the age group over 35 years who have a higher chance of experiencing cancer, so they have a higher awareness of making efforts to prevent cervical cancer.

The research results showed that 87.5 percent of participants showed good behavior towards preventing cervical cancer before the counseling. After the counseling was carried out, the good

category increased to 90.6 percent. These results are in accordance with the research of Nurpaddilla et al. (2020) which states that women of childbearing age at the Payung Sekaki Community Health Center have high positive behavior, namely 69.3 percent. The high rate of good behavior is also influenced by the participants' age, with the majority over 35 years old, indicating a better level of awareness of breast cancer. The increase in good behavior after counseling occurred because participants had gained good knowledge about cervical cancer through counseling. Knowledge will give individuals encouragement in every decision making and behavior.

4. CONCLUSION AND RECOMMENDATIONS

This community service program aims to increase knowledge about the causes and symptoms of breast and cervical cancer, as well as early detection using BSE and pap smears. The implementation stage of this community service program consisted of breast and cervical cancer counseling and the pap smear examination. The results achieved in this community service program were an increase in the knowledge, attitudes, and behavior of PKK cadre regarding breast and cervical cancer. Apart from that, there was also an increase in knowledge regarding the implementation of BSE and an increase in the number of pap smears among PKK cadres in the Ciroyom district. This community service program has limitations, namely the low coverage of this activity in the Ciroyom district area. Therefore, in the future, socialization and promotion of activities are needed so that participants are not limited to PKK cadres in Ciroyom District. The service team can also collaborate with other institutions so that the scope of activities in this community service program can be wider.

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