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Peer education program improved the knowledge and skills of adolescents regarding breast self-examination

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ABSTRACT

The prevalence of adolescents doing BSE in Indonesia is still low at 46.3%. This is because young women are still unfamiliar with BSE. Based on this, peer education needs to be implemented to increase teenagers' knowledge and skills related to BSE through peers. This study aims to determine the effectiveness of peer education in improving adolescents' knowledge and skills regarding breast self-examination. This research uses a Quasi-experimental method with a control group design. The research respondents were 36 teenagers who were divided into 18 intervention groups and 18 controls. The sampling method used is Simple Random Sampling. Respondents in the intervention group were given peer education related to BSE with the help of modules. Research data processing uses SPSS with Wilcoxon and Mann-Whitney. This research has been declared ethically appropriate for research with number 030/EC-KEPK FKIK UMY/I/2024. The results of the study showed that there was a difference in pretest-posttest knowledge scores of 0.014 ($p<0.05$) in the intervention group and there was no difference in results in the control group with a result of 0.257 ($p>0.05$). Differences in pretest-posttest skill scores occurred in the intervention and control groups with sequential results of 0.001 ($p<0.05$), and 0.014 ($p<0.05$). The comparison of posttest knowledge and skills scores between the intervention and control groups respectively was 0.001 and 0.003 ($p<0.05$). Based on the result peer education is effective in improving teenagers' knowledge and skills related to BSE so that it can be used as an educational method related to BSE.

1. Introduction

Adolescence is a transition period from childhood to adulthood, during which time changes in behavior often occur which have an impact on health conditions (Wirenviona, 2020). One of the health problems that arise from unhealthy lifestyle changes is cancer. Cancer can attack anyone, including teenagers. Breast cancer is one of the biggest causes of death in the world and the incidence rate is predicted to continue to increase (Balatif & Sukma, 2021). This is due to the lack of early detection of breast cancer due to a lack of knowledge and skills among teenagers and there are still many people who do not understand how to treat breasts (Sara et al., 2023). Therefore, efforts are needed to improve the ability to detect early breast cancer.

Efforts that can be made for early detection of breast cancer are by carrying out breast self-examination (BSE). BSE is an easy and effective method, but interest in doing BSE is still low, especially for teenagers because some are still unfamiliar with BSE. The prevalence of doing BSE in Indonesia according to the Indonesian Ministry of Health in 2021 is still low, namely (46.3%). Early detection of breast cancer in Yogyakarta City was only carried out by 109 women in 2021, while specifically in Bantul Regency, early detection data was only carried out by 27 women (Department., 2021). The government continues to strive to increase interest in BSE examinations for women and teenagers by expanding teenagers' knowledge and skills.

Efforts to improve knowledge and skills for adolescents can be made through peer education and training for adolescents. Adolescents who become counselors receive training related to BSE and will share health information with other adolescents. In addition, health education and socialization are also provided to special BSE cadres who will routinely provide socialization for adolescents. These efforts are made so that all cadres and female adolescents carry out BSE independently and regularly because in general health education is only provided through socialization and community service of the women's reproductive health care movement program to increase understanding of procedures for maintaining reproductive organ health (Iwaya et al., 2023). The efforts that have been made regarding BSE have not produced good results. Some young women do not understand and do not know how to do BSE, this is due to the lack of direct socialization from health facilities for teenagers or from their peers, and the interest of teenagers in coming to counseling is still low (Siregar, 2020).

Preliminary studies conducted at private junior high schools in Yogyakarta show that there have been efforts to increase knowledge and skills. The efforts made include outreach regarding reproductive health for students carried out by the community health center. Screening programs have also been carried out for female students during the women's program, but some female students do not want to be open about the reproductive problems they experience. These efforts are considered less significant in increasing students' interest in reproductive health education, so there is a need for new, more varied programs to increase students' interest, knowledge, and skills regarding reproductive health related to BSE.

New efforts that are varied and interesting to apply to young women include peer education. This method is considered effective for increasing students' learning motivation so that it will influence their knowledge and skills (Elshamy et al., 2022). Peer education is carried out by selecting teenagers who are trained as educators and will provide health education related to BSE to other friends. Health education can be done verbally, with video demonstrations, and focus group discussions (FGD).

Based on the background that has been described, BSE is important to carry out as a preventive measure to prevent breast disease for women, especially teenagers, so researchers are interested in further identifying the effectiveness of Peer Education in increasing teenagers' knowledge and skills related to BSE. Researchers hope that this peer education can increase the knowledge and skills of BSE for teenagers.

2. Method

This research is quantitative research using a quasi-experimental method with a control group pretest-posttest design with a research sampling technique using simple random sampling. The sample selection was carried out randomly according to the inclusion and exclusion that had been determined. The sample calculation was carried out using the large sample formula for the study and the results were 18 samples. The selection of 18 samples from the total population was carried out by randomizing using a lottery. The selected samples were also adjusted to the inclusion criteria, namely students who were willing to be research respondents, students who were active in teaching and learning activities at school, and students who were present when the research was conducted. The exclusion criteria were students who did not follow the complete research process. The research was conducted in January-February 2024 at two private junior high schools in Yogyakarta. The population of this study was female students in class VII who were included in the two research locations. The research sample was 36 students who were divided into intervention and control groups based on the results of the research sample size calculation. The intervention group in this study was given treatment in the form of education through peer education, while the control group received no education. Educational activities were provided by peer educators consisting of 15 people recruited based on school recommendations according to inclusion criteria, namely students who can socialize

well, are willing to disseminate information to others, and are innovative. The selected peer educators have been trained and tested for eligibility with pretests and posttests related to BSE. The score obtained for the average pretest knowledge result was 77.3% of the minimum value of 0 and the maximum of 100%. The average pretest practice skills were 11.6% with a minimum value of 0 and a maximum of 100%. For the posttest, the average posttest knowledge result was 90.6% of the minimum value of 0 and the maximum of 100%, while the average practice after training was 76.6% of the minimum value of 0 and the maximum of 100%. The results of the significance test of the difference in the pretest and posttest knowledge values were p-value 0.001 ($p<0.05$), and the results of the difference test of BSE skills obtained a significance of p-value 0.03 ($p<0.05$). Based on these results, there is a significant difference between the results of the pretest and posttest conducted by peer educators, so that peer educators are declared eligible to provide health education related to BSE to respondents. This is to determine the effectiveness of peer education on two variables. The variables in question are knowledge and skills. This is to determine the effectiveness of peer education on two variables. The variables in question are knowledge and skills.

This research used a focus group discussion method using learning module media. The education process is carried out by providing health education and demonstrations related to BSE using learning modules to respondents who are included in the intervention group with the Focus Group Discussion (FGD) method for 60 minutes. Respondents are divided into 3 small groups with 6 members in each group. Each group is accompanied by one peer educator and facilitator. The module used has been tested for validity and reliability with results of 0.94 and 0.959 so that it can be used as a guide during the FGD. This research instrument uses a questionnaire and checklist related to breast self-examination. The knowledge questionnaire related to SADARI consists of 20 questions while the SADARI checklist contains the steps to perform SADARI. The score calculation on the questionnaire and checklist is by adding up the correct answers/total questions x 100. This breast self-examination questionnaire has been tested for validity and reliability with values of 0.834 and 0.939. The breast self-examination checklist also received validity and reliability test results with values of 0.557 and 0.667. Based on the results of questionnaire tests and breast self-examination checklists, it can be used in this research. Data analysis in this study used the SPSS statistical test with the Wilcoxon and Mann-Whitney tests. The scores obtained from the pretest and posttest will be categorized. The score categorization is Good if the accumulated score is <75-100. Enough, if the accumulated score is 56-75. Not enough, if the accumulated score is <56-0. This research has been declared ethically appropriate with number 030/EC-KEPK FKIK UMY/I/2024.

3. Results

Data collection was carried out on 36 respondents divided into 18 intervention and 18 control, the following results were obtained:

3.1. Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics in the Intervention and Control Groups

Respondent Characteristics	Intervention		Control	
	Number (n)	*Percentage (%)*	*Number (n)*	*Percentage (%)*
Age (Years)				
12-13	15	83.3	16	88.9
14-15	3	16.7	2	11.1
Gender				
Woman	18	100	18	100
Resources				
No Information Yet	17	94.4	18	100
Parent	0	0	0	0
Teacher	0	0	0	0
Social media	0	0	0	0
Friends of the same age	0	0	0	0
Medical Facility	1	5.6	0	0

Source: Primary Data, 2024

Based on Table 1, the characteristics of respondents show that most respondents were aged 12-13 years, 15 respondents (83.3%) in the intervention group and 16 respondents (88.9%) in the control group. All respondents in this study were female, 18 respondents (100%) in both groups. A total of 17

respondents (94.4%) in the intervention group and 18 respondents (100%) in the control group had never received information regarding BSE.

3.2. Adolescents' Knowledge and Skills about BSE

This research uses the Wilcoxon test because the data in this research is categorical ordinal. This test is used to determine the differences in pretest and posttest scores in each group as follows:

3.2.1 Knowledge

Table 2. Difference Analysis Results from Pretest-Posttest Intervention Group Knowledge

Knowledge Intervention Group	Pretest		Posttest		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	4	22.2	0	0	
Enough	**10**	**55.6**	**9**	**50.0**	**0.014**
Good	4	22.2	**9**	**50.0**	

Source: Primary data, 2024

Table 2. The above shows that there is a significant difference between the pretest and posttest scores on adolescent knowledge regarding BSE in the intervention group.

Table 3. Difference Analysis Results from Pretest-Posttest Control Group Knowledge

Control Group Knowledge	Pretest		Posttest		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	**11**	**61.1**	8	44.4	
Enough	7	38.9	**10**	**55.6**	0.257
Good	0	0	0	0	

Source: Primary data, 2024

Table 3 shows that there is no significant difference between the pretest and posttest scores for knowledge about BSE in the control group.

3.2.2. Skills

Table 4. Difference Analysis Results from Pretest-Posttest Intervention Group Skills

Intervention Group Skills	Pretest		Posttest		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	**18**	**100**	4	22.2	
Enough	0	0	**7**	**38.9**	**0.001**
Good	0	0	**7**	**38.9**	

Source: Primary data, 2024

Table 4 shows that there is a significant difference between the pretest and posttest scores for BSE skills in the intervention group.

Table 5. Difference Analysis Results from Pretest-Posttest Control Group Skills

Control Group Skills	Pretest		Posttest		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	**18**	**100**	**12**	**66.7**	
Enough	0	0	6	33.3	**0.014**
Good	0	0	0	0	

Source: Primary Data, 2024

Results Table 5 shows that there is a significant difference between the pretest and posttest skill scores in the control group.

3.3. The Effectiveness of Peer Education in Increasing Adolescents' Knowledge and Skills about BSE

This study uses the Mann-Whitney test to test the hypothesis because the data in this study is ordinal categorical data. The results of the Mann-Whitney test in both groups can be as follows:

3.3.1 Knowledge

Table 6. Value Difference Results from Adolescent Knowledge Posttest in the Intervention and Control Groups

Knowledge After Intervention	Intervention Group		Control Group		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	0	0	8	44.4	
Enough	**9**	**50.0**	**10**	**55.4**	**0.001**
Good	**9**	**50.0**	0	0	

Source: Primary Data, 2024

Based on table 6, shows a significant difference in adolescent knowledge between the intervention and control groups after peer education regarding BSE was carried out.

3.3.2 Skills

Table 7. Value Difference Results from Adolescent Skills Post-test in the Intervention and Control Groups

Skills After Intervention	Intervention Group		Control Group		P Value
	(n)	*(%)*	*(n)*	*(%)*	
Not enough	4	22.2	**12**	**66.7**	
Enough	**7**	**38.9**	6	33.3	**0.003**
Good	**7**	**38.9**	0	0	

Source: Primary Data, 2024

Table 7 shows that there is a significant difference in the skills of the intervention and control groups after peer education for adolescents regarding BSE.

4. Discussion

4.1 Adolescents' knowledge regarding breast self-examination (BSE)

The research results showed that there was a significant difference between the pretest and post-test results in the intervention group with a p-value of 0.014 ($p<0.05$) which showed an increase in the results of the respondents' pretest and post-test. This is because the intervention group was given health education related to BSE after the pretest. The pretest and post-test results in the control group did not show any significant difference with a p-value of 0.257 ($p>0.05$) because the control group was not given health education related to BSE after the pretest was completed. This is following research written by (Kumalasari et al., 2020) which states that health education is an easy-to-understand way to increase knowledge and understanding. Other research reveals that health education carried out on teenagers can increase teenagers' insight and knowledge (Nagy-Pénzes et al., 2022).

Adolescents' knowledge can be influenced by several factors, one of which is age. The results of this study showed that the average number of respondents aged 12-13 years was 15 respondents (83.3%) in the intervention group and 16 respondents (88.9%) in the control group. Adolescents generally have a high curiosity about new things so it can affect the knowledge they have. This description is in line with research by (Hazarani, 2022) which states that teenagers' high interest in learning something new is one of the factors that can increase knowledge. This opinion is supported by research (Setiawati et al., 2022b) which states that teenagers tend to have better knowledge because someone who is a teenager can receive information related to reproductive health well. Apart from age, the source of information is also a factor that can increase knowledge.

The research results showed that almost all respondents had never received a source of information about BSE, so this influenced the pretest and posttest results for each group. Based on these results, teenagers can access information to increase their knowledge because currently, teenagers are in the digital generation with all the ease of access to information. research by (Thaha & Yani, 2021) stated that the role of information media is very important for the formation of knowledge. Increased access to information from various media encourages teenagers to continue searching for information until they feel satisfied with the results obtained. The low level of information sources obtained in this study could also be caused by teenagers who are still unfamiliar with BSE.

Information regarding BSE is still not widely known among the public, especially teenagers, so it is still considered taboo to be discussed and carried out routinely. This opinion is by previous research

which stated that around 49.87% of female teenagers had never heard of breast self-examination and had never looked for information regarding breast self-examination. The research also wrote that breast health for women received less attention (Mossa, 2022). Another study written by (Cheryl et al., 2020) stated that half of the respondents (43.3%) had no knowledge about BSE and had never heard of BSE before the research, so there was a need for more health education regarding BSE. The description of the research opinion above is not in line with other research which states that based on the results of interviews, some young women already have quite extensive knowledge regarding BSE because the information related to BSE is already familiar, and most already understand the practice of BSE (Maulani et al., 2021).

4.2. Adolescent Skills Related to Breast Self-Examination (BSE)

The research results showed that there were significant differences in the results of the pretest and posttest skills scores in the intervention group. The intervention group obtained a p-value of 0.001 ($p<0.05$). These results can be influenced by health education in the form of demonstrations of BSE practice so that teenagers can practice BSE according to the movements being modeled. This is proven by the results of the research conducted (Wahdi et al., 2020) which obtained a significant difference in skills after the demonstration had a p-value of ($0.001<0.05$) so the BSE demonstration was effective in increasing the practical ability of young women in performing BSE. Education using the demonstration method also increases teenagers' interest and concentration regarding BSE so that teenagers tend to remember the movements they do more easily because they get direct examples rather than just imagining them (Zakaria et al., 2021). The Wilcoxon test results in the control group obtained a significant p-value of 0.014 ($p<0.05$). This shows that the control group also experienced an increase in skills without any education by peer educators. These results can be influenced by the knowledge that respondents have which is obtained independently from other sources of information during the research process.

Knowledge can influence a person's actions after getting the information so that it can be applied afterward. This opinion is reinforced by the results of previous research which states that knowledge related to BSE is important for young women to have because good knowledge is one of the reasons why young women can apply for BSE tests regularly (Par'ain, 2023). Other research states that experience and knowledge will make a person's abilities stronger so that people will become more skilled in carrying out actions (Agustin et al., 2020).

4.3. The Effectiveness of Peer Education in Increasing Adolescents' Knowledge and Skills Regarding Breast Self-Examination (BSE)

Based on the results of the Mann-Whitney hypothesis test, a p-value or significance of 0.001 ($p<0.05$) was obtained on the posttest value of BSE knowledge between the intervention and control groups. The significance value in the skills posttest results between the intervention and control groups was obtained by a p-value of 0.003 ($p<0.05$). These results state that there are significant differences in the results of adolescent girls' knowledge and skills related to BSE between the intervention and control groups after peer education intervention was carried out for adolescents so that it was declared effective to be implemented for adolescents.

Peer education is an effective method for increasing teenagers' knowledge and skills regarding BSE examinations because teenagers tend to more easily receive information from friends their age. This can be seen during the peer education process, where teenagers appear enthusiastic about participating in activities and often ask questions regarding BSE. Research conducted by (Sadoh et al., 2021) stated that peer training education is an effective strategy that can be used to increase teenagers' knowledge regarding BSE. Peer education accompanied by effective practical learning to improve teenagers' skills regarding BSE practices independently and routinely (Azuonwu & Uka-Nnodim, 2022). Other research written by (Gibbons et al., 2020) stated that teenagers have better knowledge and behavior after intervention in the form of peer education related to BSE and can increase teenagers' enthusiasm for doing BSE.

The success of peer education in increasing teenagers' knowledge and skills related to BSE cannot be separated from good cooperative ties between respondents and peer educators. This is in line with the opinion expressed by (Malik & Handayani, 2023) that peer educators can increase the knowledge and skills of other students regarding BSE because they feel more confident with friends their age. The results of this research were obtained (p-value $0.00<0.05$) with an increase in skills of 66% after receiving examples from peers. This opinion is reinforced by previous research which stated that there

was a significant increase in BSE knowledge and skills with a p-value of 0.000<(a) 0.05, where teenagers more easily understand information provided by peers when discussing in lighter language (Zakaria et al., 2021). This is supported by another opinion by (Elshamy et al., 2022) who stated that peer education is more effective and is recommended as a method to increase teenagers' knowledge and skills regarding BSE because teenagers prefer to spend time with friends which increases their sense of trust with fellow friends. Another factor that influences the success of peer education is the method used in the form of Focus Group Discussion (FGD).

Peer education activities in this research used the Focus Group Discussion (FGD) method. This method is used to make it easier for peer educators to convey education related to BSE and to make respondents more focused on receiving information and exploring BSE-related matters so that knowledge and skills can be obtained to the maximum. This opinion is in line with research by (Suripatty, 2024) which stated that FGD had a significant effect on increasing teenagers' knowledge and skills related to BSE with a p-value (0.00<0.05), this was because the information obtained from the FGD was more informative and easy to understand. This opinion is reinforced by other research which states that small group discussions are better applied to increase the knowledge and skills of adolescents during education related to reproductive health because they increase the critical power of adolescents (Khotimah, 2023). Other research by Hussein et al. (2023) stated that the FGD method can be used to overcome knowledge gaps and become a supporting method for carrying out BSE practices.

5. Conclusion

Based on the results and discussion that have been described, it can be concluded that peer education is effective in increasing teenagers' knowledge and skills regarding breast self-examination (BSE).

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