



THE INFLUENCE OF PEER EDUCATOR EMPOWERMENT ON IMPROVING KNOWLEDGE AND SKILLS OF ADOLESCENT GIRLS REGARDING BREAST SELF-EXAMINATION AT STATE SENIOR HIGH SCHOOL 04 BENGKULU CITY

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Abstract

Breast cancer is one of the leading causes of death among women worldwide, including in Indonesia. Breast self-examination (BSE) is an important early detection effort that should be practiced from adolescence. Preliminary surveys at State Senior High School 4 Bengkulu City revealed that most female students had neither knowledge of nor experience in performing BSE. Therefore, this study aims to determine the effect of peer educator empowerment on improving the knowledge and skills of adolescent girls regarding BSE at State Senior High School 4 Bengkulu City in 2025. This study employed a pre-experimental design with a one-group pretest–posttest approach. The sample consisted of 35 twelfth-grade female students, selected using proportional systematic sampling. The intervention was conducted through the empowerment of 35 peer educators who received training over three sessions, after which they provided education on breast cancer and the procedure for performing BSE to their peers. Data were collected using a knowledge questionnaire and a skills checklist, and analyzed using the Wilcoxon Signed Rank Test. The results showed a significant improvement in both knowledge and skills after the intervention. The average knowledge score increased from 7.09 to 16.54, while the skills score increased from 7.86 to 72.71. The Wilcoxon test revealed p-values of 0.000 for both knowledge and skills variables (<0.05), indicating a statistically significant effect. These findings demonstrate that peer educator empowerment significantly influences the improvement of knowledge and skills among adolescent girls regarding BSE at State Senior High School 4 Bengkulu City. It is recommended that State Senior High School 4 Bengkulu City reactivate its peer group program as a platform for health education, particularly concerning breast self-examination (BSE), and ensure the sustainability of such activities to be carried out regularly.

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INTRODUCTION

Breast cancer is one of the most common types of cancer and ranks as the second-highest cause of new cancer cases among women worldwide. According to data from the World Health Organization (WHO) in 2022, there were 2.3 million women diagnosed with breast cancer and 670,000 deaths caused by it globally (World Health Organization, 2022). Based on data from the Global Cancer Observatory (GCO) in 2022, there were 2,296,840 new breast cancer cases, with an incidence rate of 46.8 per 100,000 women and 666,103 deaths, equivalent to a mortality rate of 12.7 per 100,000 population (Ferlay et al., 2024).

According to the Indonesia Health Profile (2023), there were 1,142 suspected breast cancer cases and 2,762 cases of breast lumps among 2,277,407 women aged 30–50 years who had undergone early breast cancer screening (Ministry of Health RI, 2024). Similarly, data from the Bengkulu Provincial Health Office (2023) indicated that nine women were suspected of having breast cancer in Bengkulu Province. Tumor and lump cases also showed an increase, from 56 cases in 2022 to 67 cases in 2023. Among 365,316 women aged 30–50 years, only 12,041 (3%) had undergone clinical breast examinations (Bengkulu Provincial Health Office, 2023).

Data from Dr. M. Yunus Regional Hospital Bengkulu also showed a rising trend in breast cancer cases. In 2023, the hospital recorded 199 breast cancer cases, which increased to 253 cases in 2024. This upward trend highlights that breast cancer remains a serious public health issue requiring greater attention in prevention, early detection, and treatment efforts.

Breast cancer is a leading cause of death among women. Alarmingly, cases are increasingly found in younger age groups, with reports of girls as young as fourteen years old developing breast tumors. If such conditions are not identified early, these tumors may progress into malignant cells that can cause breast cancer (Pramesti et al., 2020). Therefore, routine health examinations are crucial to prevent and detect cancer at an early stage. One of the most effective early detection methods is Breast Self-Examination (BSE) or SADARI (Farlina et al., 2023).

Failure to perform BSE may result in women not recognizing early signs of breast cancer, such as the presence of lumps or changes in breast shape. Furthermore, women who are diagnosed late may experience reduced chances of recovery (Rohmah et al., 2024).

Knowledge and skills related to BSE are essential in determining how adolescent girls practice it. One of the main factors influencing their understanding and ability is the lack of access to information and limited peer influence. Thus, providing education through peer educators becomes a vital strategy to enhance the knowledge and practical skills of young women in performing BSE (Balu et al., 2024).

A study conducted by Wijayanti et al. (2022) titled *“The Effect of Peer Education Method on the Level of Knowledge About Breast Self-Examination (BSE) Among Female Adolescents at SMA Negeri 1 Kubu”* found a significant difference between the average knowledge scores of students before and after receiving BSE education, with a p-value of 0.000 (<0.05). This indicates that peer education is highly effective in improving adolescent girls’ knowledge about BSE.

Similarly, Malik et al. (2023) in their study *“The Effect of Peer Education on Knowledge and Skills in*

Breast Self-Examination Among Female Students at SMK Negeri 5 Semarang” reported that health education through peer educators significantly improved knowledge and skills, with a p-value of 0.000 (<0.05). The intervention group showed a greater increase in BSE knowledge and skills than the control group, with a score difference of 39.67 points.

According to data from the Bengkulu Provincial Office of Education and Culture (2025), there were 727 female students at SMA Negeri 4 Bengkulu City, 711 at SMA Negeri 7, and 703 at SMA Negeri 2. SMA Negeri 4 was selected as the research site because it has the largest number of female students, making it the most appropriate location for conducting peer education interventions aimed at reaching more adolescent girls and enhancing their knowledge and skills regarding BSE.

A preliminary survey conducted among 10 female students from SMA Negeri 4 Bengkulu revealed that 8 students (80%) had low knowledge about breast cancer and BSE. In interviews, the same number (80%) reported never performing BSE, while 2 students (20%) had done it occasionally. One student even reported finding a lump during BSE. The interviews also showed that the school lacked information dissemination about breast self-examination, either from teachers or peers.

Based on these findings, the researcher is interested in conducting a study titled: “The Influence of Peer Educator Empowerment on Improving Knowledge and Skills of Adolescent Girls Regarding Breast Self-Examination at State Senior High School 4 Bengkulu City in 2025.”

MATERIALS AND METHODS

In this study, the population consisted of all 12th-grade female students at State Senior High School 4 Bengkulu City, totaling 250 students. The sample consisted of 70 female students, comprising 35 students who received the intervention and 35 students who served as peer educators. The sampling technique used in this study was proportional sampling using a systematic sampling method. This research was conducted at State Senior High School 4 Bengkulu City, located on Jl. Zainul Arifin, Timur Indah Subdistrict, Singaran Pati District, Bengkulu City, Bengkulu Province.

The research instruments used in this study included a questionnaire, a checklist sheet, a PowerPoint presentation, and printed PowerPoint materials as tools for training the peer educators.

To process the data, the researcher first conducted a normality test on the collected data using the Shapiro–Wilk Test. If the data were found to be normally distributed, the analysis was carried out using the Paired T-Test. However, if the data were not normally distributed, the researcher used the Wilcoxon Signed Rank Test for the bivariate analysis.

RESULTS AND DISCUSSION

Univariate Analysis was aims to determine the average level of knowledge and skills of adolescent girls regarding breast self-examination before and after the intervention conducted through peer educators at State Senior High School 4 Bengkulu City. The results of this analysis are presented in the following table:

Table 1. Average Improvement in Knowledge and Skills Before and After the Intervention Through Peer Educators

Variabel	Mean	Beda Mean	SD	Min	Max	
Pengetahuan						
- Before	35	7,09	9,45	1,579	5	11
- After	35	16,54		1,578	13	20
Keterampilan						
- Before	35	7,86	64,85	4,251	0	15
- After	35	72,71		9,727	50	95

From the table above, the average knowledge score before the intervention by peer educators was 7.09, which increased to 16.54 after the intervention, showing an average improvement of 9.45. Meanwhile, the average skill score before the intervention was 7.86, which rose to 72.71 after the intervention, resulting in an average increase of 64.85.

Bivariate Analysis, Before conducting the bivariate analysis, the researcher performed a normality test using the Shapiro–Wilk method. The results showed that the data were not normally distributed, as the significance value (Sig.) was less than 0.05. Therefore, the bivariate analysis was carried out using the Wilcoxon Signed Rank Test.

The results of this analysis are presented in the following table:

Table 2. The Effect of Peer Educator Empowerment on Improving the Knowledge and Skills of Adolescent Girls Regarding Breast Self-Examination at State Senior High School 4 Bengkulu City

Variabel	Mean	Mean Rank	P-Value
Knowledge			
- Before	7,09	,00	0,000
- After	16,54	18,00	
Skill			
- Before	7,86	,00	0,000
-After	72,71	18,00	

Based on Table 2 above, the p-value was 0.000 (< 0.05) for both the knowledge and skills variables. This indicates that peer educator empowerment has a significant effect on improving the knowledge and skills

of adolescent girls regarding breast self-examination at State Senior High School 4 Bengkulu City. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, demonstrating that the results of this study are statistically significant.

CONCLUSION

Based on the results of the study conducted at State Senior High School 4 (SMAN 4) Bengkulu City and as explained in the previous chapter, the researcher concluded that: The average knowledge score of adolescent girls increased after the intervention, reaching 16.54, with an average improvement of 9.45. The average skill score of adolescent girls also increased after the intervention conducted by the peer educators, reaching 72.71, with an average improvement of 64.85. and There is a significant effect of peer educator empowerment on improving the knowledge and skills of adolescent girls regarding breast self-examination at SMAN 4 Bengkulu City, as indicated by the $p\text{-value} = 0.000$.

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DECLARATION STATEMENT

The authors declare that they have no conflict of interest.

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