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Health Education and Simulation of Breast Self-Examination Implementation for Young Women at Konawe Islands State High School

Fajar Kurniawan[1], Evodius Nasus[2], L Lisnawati[3], T Tawakkal[4], Ira Nurmala[5], A Andriyani[6], H Hasda[7], Q Qur'ani[8], Sugi Rico Andrean[9]

[1,3,4,5,6,9]STIKes Pelita Ibu, Southeast Sulawesi, Indonesia
[2]Department of Nursing Program, University of November 19, Sulawesi Tenggara, Indonesia
[7]Regional General Hospital of Konawe Islands District, Indonesia
[8]Mandala Waluya University, Southeast Sulawesi, Indonesia

Author Email: ns.fajarkurniawan87@gmail.com[1] , evonasususn@gmail.com[2] , alfaridzfaqi16@gmail.com[3] tawakalpelita17@gmail.com[4], kikidhilaira@gmail.com[6], hasdazahra@gmail.com[7], qurani.umi2002@gmail.com[8] rikoandreyan13@gmail.com[9]

Abstract. This lecturer's dedication aims to increase health awareness of adolescent girls at Konawe Islands State High School through education and breast self-examination simulations. Lecturers are involved in the development of educational programs involving interactive presentations, group discussions, and simulated demonstrations of breast self-examination. During the activity, lecturers provided in-depth knowledge about the importance of early detection of breast cancer and provided practical information on how to conduct self-examination correctly. The simulation was performed using simple breast models and visual aids. The results of this dedication show an increase in the knowledge and skills of young women in conducting breast self-examinations, as well as motivating them to maintain breast health regularly. With this approach, lecturer service contributes positively to breast cancer prevention efforts and improves the quality of life of adolescent girls in the educational environment.

Keywords: Breast Self-Examination, Education, Young Women

1 Introduction

The low prevalence of Breast Self-Examination (BSE) behavior among adolescents, despite the critical importance of early breast cancer detection, poses a significant public health concern. While breast cancer traditionally affects women over 30, the rising incidence among young women and adolescents emphasizes the need for proactive measures [1]. serves as a cost-effective and accessible method for early detection. Its primary objective is to empower individuals to detect abnormalities or changes in their breasts promptly, facilitating timely intervention by healthcare professionals. Early detection through BSE not only enables swift therapeutic interventions but also holds the potential to reduce mortality rates associated with breast cancer in the long term. Raising awareness and promoting BSE practices among adolescents are crucial steps toward fostering a proactive approach to breast health in younger demographics [2].

Breast Self-Examination (BSE) is a proactive technique empowering women to conduct personal assessments of their breasts visually and through tactile examination. The primary goal of BSE is the early detection of abnormalities, including lumps, which could be indicative of breast health concerns. It is generally recommended that women perform BSE once a month, ideally between the 7th and 10th days of their menstrual cycle. This regular practice allows women to become familiar with the normal texture and appearance of their breasts, making it easier to detect any changes promptly. BSE serves as an essential component of breast health awareness, enabling women to take an active role in monitoring and maintaining their well-being [3]. This method has significant value as a screening tool due to its cost-effectiveness, simplicity, non-invasiveness, and the absence of special equipment requirements. BSE allows women to take an active role in monitoring their breast health, increasing the likelihood of early detection and timely medical intervention if any deviations are detected. [4].

The global burden of breast cancer in 2020 was substantial, with 2.3 million women diagnosed and 685,000 reported deaths. By the end of the same year, 7.8 million women were living with a diagnosis of breast cancer within the past 5 years [5]. In Indonesia, breast cancer accounted for 16.6% of the total new cancer cases in

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2020, reaching 68,858 cases out of 396,914 reported cases. The death rate associated with breast cancer in Indonesia was 9.6%, reflecting the severity of the disease's impact. With over 22,000 reported deaths, breast cancer remained a significant health concern in the country. These statistics underscore the urgent need for comprehensive awareness, early detection efforts, and improved healthcare infrastructure to address the challenges posed by breast cancer in Indonesia and globally [6].

Indeed, approximately half of breast cancer cases are diagnosed in women without readily identifiable risk factors other than being female and over 40 years old. However, various factors have been associated with an increased risk of breast cancer. These include age, with a higher incidence in older women; obesity, as excess body weight can contribute to hormonal changes that may increase risk; alcohol consumption, with evidence linking higher intake to an elevated risk; family history of breast cancer, indicating a genetic predisposition; radiation exposure, especially at a young age; reproductive history, including early onset of menstruation and late menopause; tobacco use; and postmenopausal hormone therapy. Understanding these risk factors is crucial for implementing preventive measures, promoting awareness, and facilitating early detection efforts. It's important to note that having one or more risk factors does not guarantee the development of breast cancer, and individuals without apparent risk factors can still be affected. Regular screenings, lifestyle modifications, and awareness campaigns contribute to overall breast health and the prevention or early detection of breast cancer. [7].

The practice of SADARI, the Indonesian acronym for breast self-examination, is significantly influenced by individuals' knowledge and attitudes, underscoring the critical role of information dissemination and health education. Educating individuals about the importance of breast self-examination for early cancer detection is crucial in promoting proactive health behaviors. A lack of awareness regarding this examination can lead to delayed detection, undermining the preventive potential of early intervention against breast cancer. Therefore, addressing knowledge gaps through comprehensive health education is essential for empowering individuals to take charge of their breast health, reduce the incidence of breast cancer, and enhance the effectiveness of timely detection and preventive measures. [3], [8].

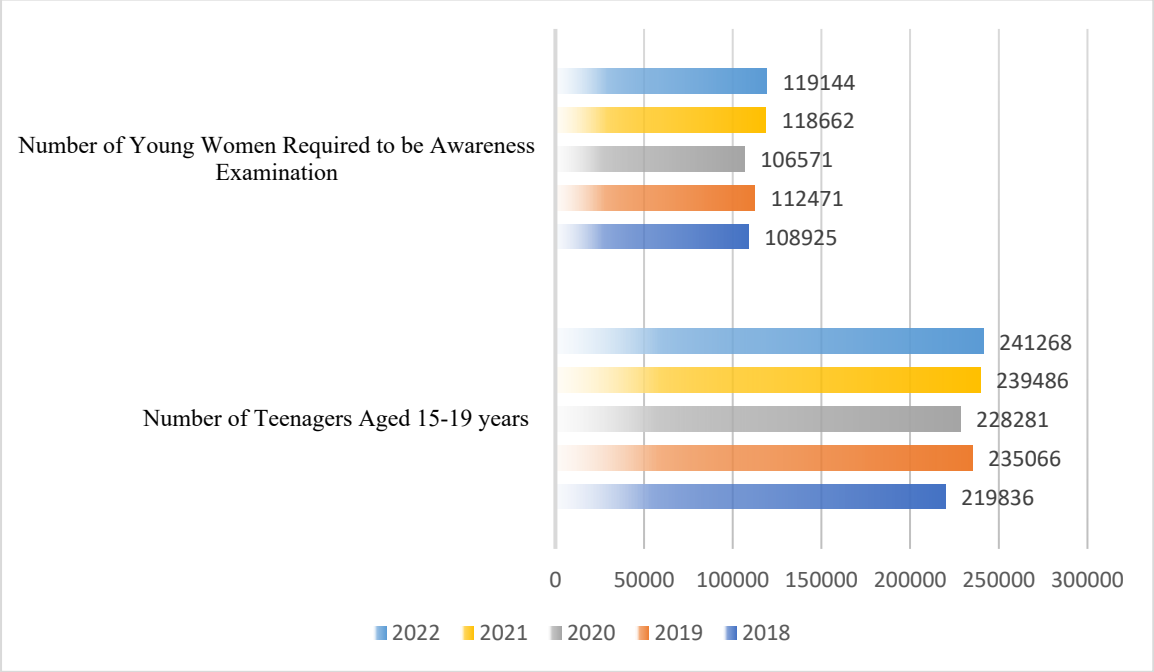


Figure 1. Gerafik Statistical Data on the Number of Adolescents Aged 15-19 Years and Young Women are Required to Take an Examination for 2018-2022[9]

From the presented table, it can be inferred that a substantial number of adolescent girls are encouraged to engage in conscious breast examinations as a preventive measure against breast cancer, with consistently high percentages exceeding an average of 50%. Notably, in 2020, the percentage reached its peak at 68.26%. Initial observations at Konawe Islands Regency High School involved interviews with 10 female students, revealing that 1 in 10 students understood the concept of breast self-examination but had not executed the procedure correctly. This led the researchers to conclude that there was a significant lack of awareness among female students regarding proper BSE practices. Choosing high schools as the target for research is rationalized by the fact that adolescent girls aged 15-19 are in the school-age range. The hope is that high schools can serve as a

focal point for large-scale dissemination of information through information provision and health education. By initiating awareness programs in high schools, there is a potential for reaching a substantial portion of the adolescent population, contributing to increased knowledge and proper practices related to breast self-examination.

The findings from previous research conducted by Pulungan 2020; revealed that, during the preparation stage, none of the participants had received prior education about Breast Self-Examination (BSE), with 95% of the 32 participants being introduced to BSE for the first time. The initial low level of knowledge was evident in the pre-test results, indicating that most mothers had limited knowledge about BSE and breast cancer. However, following education and training sessions, there was a notable improvement in maternal knowledge concerning BSE. Additionally, research by Efni 2021; targeted 30 female students and involved various educational methods such as PowerPoint presentations, leaflets, posters, videos, and practical demonstrations using models. Post-education assessments indicated that all students not only comprehended the information but could also accurately demonstrate the techniques of Breast Self-Examination. These studies emphasize the effectiveness of educational interventions in enhancing awareness and knowledge about BSE among different groups of participants.

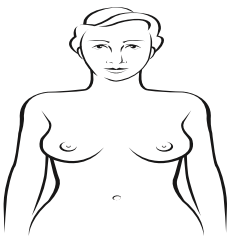
2 Method

Community Service by educating and seeing the success of these activities then using statistical assistance with *pre and post experiment* designs. The research design used is *One-Group Pretest-Posttest*, In this design a group extension method is used. First measurement is carried out, then subjected to treatment, then measurement is carried out at the end of the activity [10].

This Community Service will be carried out from May to June 2023. The population in this study amounted to 144 female students consisting of classes X, XI and XII of Konawe Islands Regency High School in 2022. The sample constitutes a portion of the population. The sample of this study consisted of grade X and XI students of Konawe Islands Regency High School in 2022. The sampling method using *Purposive Sampling* is a sampling process with certain considerations and meets the criteria, namely students with a study period of more than 1 year. So the sample in the study is the number of students of classes X, XI and XII minus the number of female students with a study period of not more than 1 year (144 – 47 = 97) while the results of the reduction will be a sample of this study with a total of 97 people consisting of class X and XI students. The instrument in this study used questionnaires that were tested for validity and reliability before.

For the simulation use the WHO standard practice guidelines as follows. Steps to do BSE (Ministry of Health RI 2020; 19):

Table. 1 Figure Step Examination Step Realize

No	Picture	Inspection steps
1		The instructions provided emphasize the importance of regular self-examination for breast health. Standing in front of a mirror, individuals are advised to carefully inspect both breasts, checking for any unusual signs such as nipple retraction, redness, puckering, dimples, or scaling on the skin. Additionally, individuals should be attentive to any nipple fluid, and any vaginal discharge should be promptly reported to a healthcare professional. This self-examination method involves paying attention to the color of the discharge, determining whether it originates from both breasts, and noting the number of openings, as these observations can provide valuable information about breast health and any potential abnormalities. Regular and thorough self-examinations contribute to early detection and proactive management of breast health concerns.

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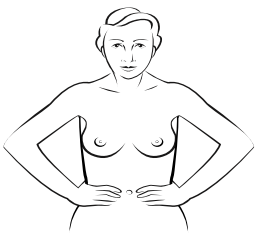
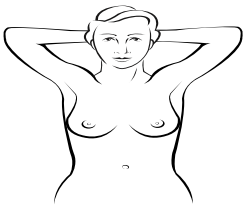
2		The described technique involves pressing the hands firmly on the hips and leaning slightly toward a mirror while simultaneously pulling the shoulders and elbows forward in a squeezing or hugging motion. This specific approach is designed to help individuals observe any changes in the normal shape of their breasts. By altering the positioning and applying pressure, this method aims to enhance the visibility of subtle variations or abnormalities in breast appearance. Regularly incorporating such comprehensive self-examination techniques into a routine can contribute to the early detection of any irregularities, allowing for timely medical attention and proactive breast health management..
3		The provided instructions suggest a self-examination method where, while looking in the mirror, individuals raise their hands and place them behind their heads. This positioning facilitates a clearer view of the bottom of the breasts. By incorporating various movements and angles during self-examination, individuals can enhance their ability to detect any changes, abnormalities, or irregularities in the breast area. Regular and thorough self-examination, including diverse viewing angles, contributes to heightened awareness of breast health and early detection of potential concerns..
4		The provided instructions guide individuals through a self-examination technique involving the armpit area and surrounding regions. The process includes placing the left hand on the waist, rolling the shoulders forward, and reaching into the left armpit to check for enlarged lymph nodes—small glands that may fill with fluid during an infection. The examination involves feeling for any knots, which might be comparable to the size and texture of a grain of corn or beans. The individual is then prompted to check the area above and below the collarbone. This process is repeated on the right side. Regular self-examinations of these areas contribute to the overall awareness of breast health and can aid in the early detection of potential concerns..

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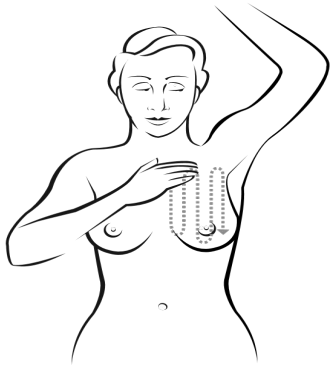
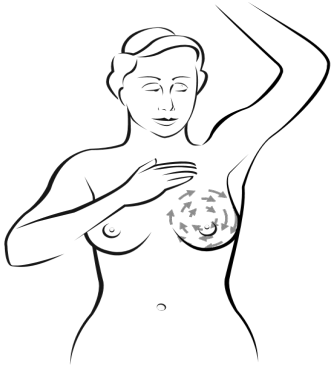
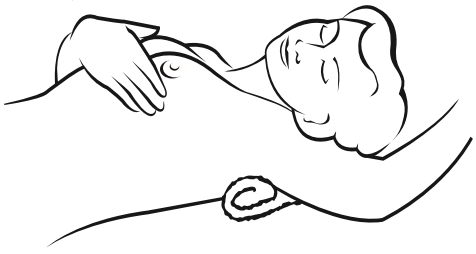




The provided instructions offer a comprehensive guide for breast self-examination using three levels of pressure (light, medium, and firm) and three potential patterns (line, circle, and slice). Here's a breakdown of each method:

Line:
Start from the outer edge of the breast.
Move fingers down in a circular motion until under the breast.
Shift fingers slightly towards the center and move back up.
Circle:
Begin at the outer edge of the breast.
Use the flat part of your fingers to move in a circle around the breast.
Gradually make smaller circles towards the nipple, ensuring to check behind the nipples.
Irisan (Slice):
Start from the outer edge of the breast.
Move fingers towards the nipple and then back to the outer edge.
Regardless of the chosen method, it is crucial to cover the entire breast area, including the sternum, collarbone, upper chest, and bra line. Pay special attention to the region between the breast and the armpit. The goal is to feel for any unusual lumps, masses, or thickening under the skin. It is emphasized that individuals do not need to lift their fingers during the examination. Regular and thorough self-examinations using these techniques contribute to proactive breast health awareness and early detection of potential concerns.

6



The provided instructions recommend lying on your back with the left arm above the head and a folded pillow or towel under the left shoulder. This positioning flattens the breasts, making them easier to examine. The same gestures as described in a previous step are then employed, utilizing three levels of pressure (light, medium, and firm) and following a specified pattern (line, circle, or slice). Some women may choose to use body lotion during this step, which can enhance the smoothness of the examination. This approach encourages a thorough self-examination process that can aid in the early detection of any abnormalities or changes in the breast tissue. Regular practice of these techniques contributes to proactive breast health management.

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3 Activity Results

3.1 Descriptive Analysis

The number of respondents consisted of 97 respondents who were given the Health Education treatment were evaluated before and after where the evaluation after treatment (Health Education) was carried out on the same day. Where it can be described in the form of a table and given the following explanation:

Table 2. Frequency Distribution of Knowledge About the Implementation of Breast Care Before Being Given Health Education in High School Grades X and XI Konawe Islands Regency

Breast Self Care Knowledge (BSE)	Before being given Health Education				Total	
	Class X		Class XI			
	f	%	f	%	f	%
Enough	13	26.00	27	57.45	40	41.24
Not enough	37	74.00	20	42.55	57	58.76
Amount	**50**	**100**	**47**	**100**	**97**	**100**

Source: 2023 Primary Data

From the table above, it can be explained that it was found that before the treatment was carried out, respondents who had sufficient knowledge about the implementation of breast care amounted to 40 respondents (41.24%), and respondents with stated knowledge of less about the implementation of breast care amounted to 57 (58.76%).

Table 3. Frequency Distribution of Knowledge About the Implementation of Breast Care After Being Given Health Education in Senior High School grades X and XI Konawe Islands Regency

Breast Self Care Knowledge (BSE)	After being given Health Education				Total	
	Class X		Class XI			
	f	%	f	%	f	%
Enough	27	54.00	41	87.23	68	70.10
Not enough	23	46.00	6	12.77	29	29.90
Amount	**50**	**100**	**47**	**100**	**97**	**100**

Source: 2023 primary data

From the table above, it can be explained that it was found that before the treatment was carried out, respondents who had sufficient knowledge of breast care alone amounted to 68 respondents (70.10%), and respondents with stated knowledge of less about the implementation of breast care amounted to 29 (29.90%).

3.2 Bivariate Analysis

The data of this study has data types with distribution or normal distribution and variance both indicate a homogeneous population. Therefore, the type of data analysis uses *nonparametric statistical analysis* and the analysis method used is the *Mc Nemar Test*.

Table 4. Distribution of the Effect of Health Education on Knowledge About the Implementation of Breast Care Alone in Grade X and XI High Schools Konawe Islands Regency

Pre	Post				Amount		Tes Statistics Sig. (2-tailed)		Mean
	Don't Know Yet		Know						
	f	%	f	%	f	%	Mc Nemar	Z	
Don't Know Yet	29	29.90	28	28.87	57	58.76	0.000	0.000	0.412
Know	0	0.00	40	41.24	40	41.24			0.701
Amount	**29**	**29.90**	**68**	**70.10**	**97**	**100.00**		**100.00**	

Source: 2023 Primary Data

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From the table above, it can be explained that the *McNemar Test* results value 0.000 < 0.05, meaning that health education affects students' knowledge in the implementation of breast self-examination.

Next find the Z value of the table (Z distribution table) with a confidence level of 5%, because we use a 2-sided test then 5% divided by 2 equals 2.5%. So the area of the normal curve is 50% - 2.5% = 47.5% or 0.475. So we can get the Z value of the table on the double-sided test for an area of 0.475 obtained a table Z number of approximately 1.96. From the results of the Z calculation calculate the table < Z and the significant value < 0.05, or 0.00 < 1.96 and the *Exact Sig. (2-tailed) value is* equal to 0.000 then H0 is rejected, with interpretation stated there is a significant influence from the results of treatment.

Table 5. Average Distribution of Increased Effect of Health Education Provision on Knowledge About the Implementation of Breast Self-Care in Grade X and XI High Schools Konawe Islands Regency

Responen (n)	Average Knowledge	
	Before	After
97	0.412	0.701

The results of descriptive statistical summaries from both pretest and post test data Average Values for treatment administration increased the average knowledge of students in the implementation of breast self-examination, which was previously 0.412 increased to 0.701.

4 Discussion

The initial observations at Konawe Islands Regency High School, involving interviews with 10 female students, revealed that 1 in 10 students understood the concept of breast self-examination (BSE) but had not executed the procedure correctly. A variate analysis was conducted, indicating that before the treatment, 57 respondents (58.76%) lacked knowledge about the implementation of breast care. After the treatment, this number decreased to 29 respondents (29.90%). Notably, post-treatment, 29.90% of respondents did not experience changes in their knowledge, either before or after the intervention. Importantly, no respondents were found to have a decrease in knowledge after receiving health education. This suggests that the health education intervention effectively addressed the knowledge gap, leading to a reduction in the number of individuals lacking knowledge about breast care. The findings highlight the positive impact of health education in improving awareness and understanding of breast self-examination among the study participantsIt can be concluded that there is a positive effect on the provision of health treatment or counseling about BSE in Konawe Islands Regency High School students. The results of the statistical test showed an average increase in respondents' knowledge with previous results the average knowledge with a value of 0.412 increased to 0.701 after being given health education treatment related to Breast Self-Examination.

It is known that the results of other statistical summaries are also explained *that the McNemar Test* results value 0.000 < 0.05, meaning that the provision of health education affects student knowledge in the implementation of breast self-examination. And it is known that the value of Z calculate > Z table which is 5.292> 0.475 or 0.00 < 1.96 and the value of Exact Sig. (2-tailed) is *equal to 0.000 then H0 is rejected, with interpretation stated there is a significant difference in the effect of the results of treatment.*

Encouraging women to perform Breast Self-Examination (BSE) on a monthly basis is crucial for promoting early detection of breast abnormalities. Regular BSE allows women to become familiar with the normal look and feel of their breasts, making it easier to identify any changes or abnormalities promptly. The practice of BSE is not only a physical routine but also involves cultivating a positive attitude toward breast health. Attitude, as a response to stimuli or objects, plays a pivotal role in the commitment to self-examination. A proactive and positive attitude toward BSE enhances the likelihood of women incorporating this important practice into their regular health routines, ultimately contributing to early detection and improved breast health outcomes [12]. Attitude is a form of evaluation or emotional reaction to an object is a feeling of support or partiality (*fovarable*) or a feeling of unsupport or *impartiality (unforable*) on the object.

Health behavior can be fundamentally understood as an individual's or organism's response to various stimuli related to illness, disease, the healthcare system, food, and the environment. This conceptualization involves two key elements: the response or reaction of the individual, which can be both active and passive, and the stimuli or stimulation, encompassing four primary elements—illness, disease, the healthcare system, and the environment. The dynamic interplay between these stimuli and responses shapes an individual's behavioral patterns concerning health, reflecting their active engagement or passive reactions to the surrounding factors. Recognizing these elements is essential for comprehending the complex nature of health behaviors and tailoring effective interventions to promote positive health outcomes. [13].

Previous research by Triana (2022) The entitled statement underscores the essence of health education as a transformative learning process that spans individuals, groups, and entire communities. It emphasizes the progression from a lack of awareness about the significance of health to acquiring knowledge, and from an inability to address one's health issues to developing the capacity to do so. The ultimate goal of health education is to empower individuals, groups, and communities to attain optimal health. This empowerment is intricately linked to the accumulation of knowledge at the individual, group, and community levels. By fostering awareness and understanding, health education becomes a catalyst for positive change, enabling individuals and communities to make informed decisions and actively engage in promoting their well-being [14].

Previous research relevant to this study was also conducted by [15] with the title Determinants of Breast Self-Examination Behavior (SADARI) in Students of the Faculty of Public Health, University of Indonesia, where the results showed that as many as 86.1% of respondents had done BSE, but only 20.43% of them routinely did BSE. The results of statistical tests showed a significant relationship between perceived benefits (P = 0.024) and perceived barriers (P = 0.001) with BSE behavior in female students.

Counseling activities play a significant role in influencing Breast Self-Examination (BSE) and the development of BSE skills in adolescents. It is crucial for counseling not only to instruct on the procedural aspects of self-examination but also to delve into the broader discussion of the impact and benefits associated with BSE. By incorporating discussions on the psychological aspects, such as the importance and potential outcomes of the activity, students are more likely to focus on the material provided and perceive the activity as personally significant. The success of counseling strategies depends on how effectively these discussions are framed and delivered, emphasizing not just the technicalities but also fostering a deeper understanding of the psychological and personal relevance of engaging in BSE [8], [16], [17].

Indicators of good knowledge after providing education can include several things, including increased understanding: Education participants or recipients of information will show a better understanding of the topic or material taught. They are able to re-explain the concepts learned in a precise and appropriate way. Increased factual knowledge: Education participants will be able to remember and understand the information provided, including important facts and basic principles related to the topic studied. Ability to identify and understand risks: Individuals who are well educated will be able to identify risks and threats related to the topic studied, such as health risks or other risks. Changes in attitudes and behaviors: Effective education can change participants' attitudes and behaviors to be more positive and in accordance with the information provided. For example, if education about healthy eating, participants can start adopting a more balanced and healthy diet after getting the right information. Ability to apply knowledge: Education participants will be able to apply the knowledge they have gained in everyday life situations or in relevant contexts. Relevant questions: Education participants who understand the material well will be able to ask relevant and intelligent questions related to the topic studied, and Awareness of information sources: Individuals who get good education will be able to recognize credible and reliable sources of information for the topic [13].

The effectiveness of education is intricately tied to how information is conveyed and tailored to the specific needs and understanding of the audience. A comprehensive educational approach should employ suitable and effective learning methods, incorporating visual aids, interactive elements, and two-way communication to optimize results. Conversely, educational efforts may fall short if they do not align with the learning preferences and needs of the target audience. In the context of adolescent girls and Breast Self-Examination (BSE), the researchers emphasize the critical importance of this behavior for early breast cancer detection. The study identifies several factors contributing to the lack of awareness among adolescents regarding the benefits of BSE, including insufficient knowledge, attitudes, family influence, media information, and peer support. However, through health education interventions, the researchers note a significant level of change, demonstrating the impact of the educational program on young women in high school.

The success indicators of the study include the enthusiastic participation of the target respondents during counseling sessions, facilitated by teaching staff and supported by the school principal. The use of educational tools, such as Reaflate, contributes to a positive learning environment. The researchers plan to conduct post-tests to analyze and interpret the gathered data, ultimately providing recommendations for future interventions. This approach underlines the importance of not only disseminating information but also ensuring that the educational process is engaging, relevant, and tailored to the specific context and needs of the audience.

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5 Activity Documentation

Figure 1-2 Pre Test for grade X and XI students of High School

Figure 3-4 Conducting BSE Counseling

Figure 5-6 Doing BSE Practice together

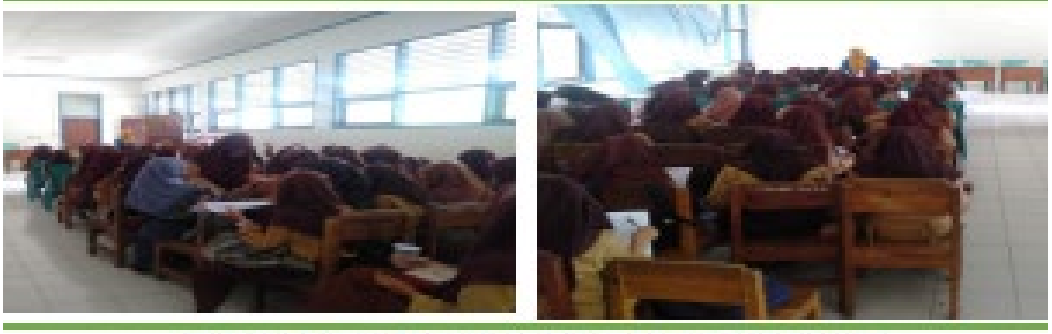

Figure 7-8 Post Post-counseling Test and BSE Practice

Picture 9 - 10 Photo with Homeroom and Principal

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Figure 11. Flip Card

6 Conclusion

The results of the data analysis from the implementation of Health Education and Simulation of Breast Self-Examination at Konawe Islands State High School show a significant change in knowledge among the female students after participating in the activity. Initially, approximately 29.90% of the respondents were unaware of breast self-examination, but after the event, none of the students remained uninformed. Conversely, knowledge that was initially possessed by around 41.24% of the students increased to 70.10%. In total, there was a 100.00% increase in measurable knowledge. Statistical analysis using the McNemar test indicated a significant difference between before and after the intervention, with a significance value (p-value) of 0.000. The conclusion drawn from these results is that the Health Education and Simulation of Breast Self-Examination Implementation activity at Konawe Islands State High School is highly effective in enhancing the students' knowledge, transforming a significant number from those who were initially unaware to being informed.

Acknowledgments

We would like to express our sincere gratitude for the completion of this community service activity. Thank you to all parties who have contributed with enthusiasm and dedication, both lecturers, students, and the community who actively participated. This success reflects not only the hard work of the team, but also the collaborative spirit that strengthens the relationship between the college and the community. We hope that the positive impact of this activity can continue to be felt by the community, and hopefully it will be an inspiration to continue service efforts that are beneficial for mutual progress. Thank you for the participation and support of all parties in realizing this community service activity.

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