Effectiveness of Health Promotion Videos in Preventing Breast Cancer

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ABSTRACT

Background: *Breast cancer is the second most common type of cancer among women worldwide. Out of a total of all types of cancer (348,809 cases), breast cancer contributed 58,256 (16.7%). Lack of information, knowledge, and awareness about breast cancer often results in adolescents not taking the initiative to engage in early detection, which is the first step in preventing breast cancer. The objective of this study is to determine the educational effectiveness of breast self-examination (BSE) using leaflets and audio-visual media on the knowledge and attitudes of female students at SMA Negeri 1 Bukateja.*
Method: *A quasi-experimental research design was employed, utilizing consecutive sampling. The study included two research groups with a total of 64 participants. Data analysis was conducted using the Chi-square test.*
Results: *The effectiveness of audio-visual media and leaflets in increasing knowledge and attitudes of female students about BSE was found to be statistically insignificant (p-value > 0.05). Therefore, it can be concluded that both leaflets and audio-visual media have a similar effectiveness in improving adolescent attitudes towards BSE. Future researchers should consider utilizing alternative media, such as WhatsApp, for BSE education, as previous studies have shown it to be more effective than leaflets in enhancing knowledge and attitudes among young women regarding early detection of breast cancer.*

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INTRODUCTION

Breast cancer is the most common type of cancer worldwide and ranks second among women. According to a 2018 World Health Organization (WHO) survey, breast cancer affected 8% to 9% of women globally.[1] In the same year, breast cancer was the second leading cause of death among women in Indonesia, accounting for 58,256 individuals (16.7%) out of a total of 348,809 cancer cases.[2]

Breast cancer is often referred to as the "silent killer" because it does not exhibit clear early symptoms and is typically detected at an advanced stage when it has already metastasized to other organs.[3] Abnormal growth of breast cells leads to breast cancer and is believed to be associated with genetically inherited genetic mutations. Additionally, several risk factors can trigger breast cancer, including early menarche and genetics.[4]

Kotsopoulus's study (2018) indicated that women with a BRCA1 gene mutation (breast cancer) who experienced menarche at the age of 14-16 years demonstrated a reduced risk of breast cancer.[5] Menarche refers to the first menstruation, typically occurring between the ages of 12 and 16 years. During this period, breast development is driven by the hormone estrogen, which increases susceptibility to breast cancer.[6]

The high prevalence of breast cancer in Indonesia necessitates preventive measures and early detection initiatives by healthcare providers. One concerning aspect of breast cancer is the rising number of cases resulting from a lack of awareness about the risk of breast cancer.[7] Insufficient information and knowledge, coupled with ignorance about breast cancer, prevent most adolescents from undertaking early detection as the primary step in breast cancer prevention.[8]

Breast cancer incidence in Central Java increased from 2012 to 2018. In 2012, there were 4,206 cases (37.09%), while in 2018, breast cancer cases reached 4,761 (52.06%).[3] Only 1.5% of women aged 30-50 years in Central Java underwent Clinical Breast Examination (CBE) for early detection of breast cancer in 2019, with a total of 74,784 women of reproductive age undergoing the examination. Among them, 1.30% were found to have tumors or lumps.[9]

The government has implemented promotional and preventive efforts to combat breast cancer, as outlined in the Regulation of the Minister of Health of the Republic of Indonesia Number 34 of 2015. These efforts involve counseling community members through various media networks and mass screenings and early follow-ups conducted by healthcare workers.[10] The Central Java

Health Office is also working towards controlling breast cancer through the Breast Self-Examination (BSE) and Clinical Breast Examination (CBE) programs. The BSE program is carried out by the community itself, while the CBE program is performed by healthcare workers.[9] Early detection and prompt, appropriate treatment of cancer cases lead to improved treatment outcomes and longer life expectancy.[11]

In this study, the intervention group will use audiovisual media, specifically animated videos that provide information about breast cancer and prevention methods. Video media is an engaging educational tool as it combines moving images and sound, effectively appealing to multiple senses and facilitating information absorption.[12]

From the preliminary study results, an interview with the midwife at Bukateja Health Center revealed that the preferred health education media for BSE was leaflets. Leaflets are practical visual media that are portable and can enhance memory retention and understanding.[13]

SMA Negeri 1 Bukateja, located in Bukateja District, Purbalingga Regency, was selected as the research site. The main reason for choosing this school was the preliminary survey conducted by four teachers at SMA Negeri 1 Bukateja, which revealed that the students had never received BSE information or undergone BSE health education before. Additionally, during interviews conducted on March 15th, 2022, with 15 young women, it was found that 13 of them were unaware of breast cancer and BSE, while only 2 had some knowledge about it. These findings formed the basis for conducting the research at SMA Negeri 1 Bukateja. Based on the aforementioned description, the researchers were motivated to conduct further research on "The Effectiveness of Leaflets and Audio-Visual Media in Increasing Knowledge and Attitudes of Young Women Regarding BSE as an Early Detection Method for Breast Cancer among Female Students at SMA Negeri 1 Bukateja.

METHOD

The research design refers to a systematic approach used by researchers to conduct scientific studies, aiming to ensure the synchronization of all research components and types of data to yield valid research result.[14] In this study, a quasi-experimental research design was employed, specifically utilizing a "Pre-Test and Post-Test Design." The research proposal underwent ethical feasibility testing by the Research Ethics Commission of the Faculty of Medicine, Sultan Agung Islamic University, with approval number 308/VIII/2022/Commission on Bioethics. The target population for this study consisted of 135 female students in the science track (class X IPA) at SMA Negeri 1 Bukateja. Based on sample size calculation, the study required 26 female students from SMA Negeri 1 Bukateja. To account for potential dropouts, 10% was added to the sample, resulting in a total of 32 participants per group. Therefore, the total sample size for both research groups was 64 individuals. The intervention group received BSE health education through audio-visual media, while the control group received BSE health education through leaflet media.

Consecutive Sampling was used in this study, meaning that all eligible subjects who met the selection criteria were included in the sample until the required sample size was reached.[15] The intervention involved health education utilizing audio-visual media, specifically media published by the Indonesian Ministry of Health on the YouTube channel of the Directorate of Health Promotion and Community Empowerment. In the control group, health education was provided using leaflets that were previously used in health promotion at the Bukateja Health Center.

The study focused on female students who met the inclusion criteria, which included menstruating adolescents who had not received prior BSE counseling and willingly participated in the study from start to finish. Exclusion criteria consisted of participants who did not attend counseling events and those with a history of or existing breast tumors. Group assignments were determined by sorting the subject numbers, with odd-numbered subjects assigned to the experimental group and even-numbered subjects assigned to the control group.

In the initial stage of data processing, which involves editing (data checking), the correctness of the collected data is verified. This includes checking the accuracy and completeness of the filled information, as well as ensuring consistency in the questionnaire responses.[16] The second step is coding, where each category of collected data is assigned a numerical code or number. The purpose of coding is to facilitate the data analysis process, particularly when using computer-based methods.[17] The code for respondents' knowledge about BSE includes three categories: good knowledge is coded as 3, adequate knowledge is coded as 2, and poor knowledge is coded as 1. Similarly, respondents' attitudes towards BSE are coded with positive attitudes as 2 and negative attitudes as 1. The third step involves scoring by assessing the score of each item in the questionnaire based on the actions taken. For knowledge-related questions, a favorable true response is assigned a score of 1, while a wrong response is assigned a score of 0. For unfavorable questions, a true response is assigned a score of 0, and a wrong response is assigned a score of 1. Regarding attitudes, positive questions (favorable) are scored as follows: strongly agree (4), agree (3), disagree

(2), and strongly disagree (1). For negative questions (unfavorable), the scoring is as follows: strongly agree (1), agree (2), disagree (3), and strongly disagree (4). The fourth step is tabulating, where the data obtained from respondents' answers are processed by assigning a score to each question item in the questionnaire. Subsequently, the data is calculated, analyzed, and presented in the form of tables or diagrams.[18]

RESULTS AND DISCUSSION

The results of the study used a univariate test to determine the frequency distribution of each variable studied, and a bivariate to determine the relationship between variables. The results of the level of knowledge of the female students before and after being given BSE education using leaflets and audio-visual media at SMA Negeri 1 Bukateja. On the variable of teenage girls' knowledge about BSE with the category of poor (≤ 50%) and good (≥ 50%). Teenage girls' attitudes about BSE with negative (score<median) and positive (score>median) categories.[19]

The score of the results before and after being given education through the leaflets and audio-visual media on the female student knowledge is shown in Table 1. Providing education using the media of leaflets shows a change in the less category, namely 4 (12.5%) to 1 (3.13%), and the good category was 28 (87.5%) to 31 (96.88%). While, the audio-visual media shows a change in the less category, namely 12 (37.5%) to 2 (6.25%), and the good category from 20 (62.5%) to 30 (93.75%). This indicates a change between before and after the educational treatment using the leaflets and audio-visual media.

Before receiving health education through leaflets, all respondents (100%) were aware that "Breast cancer is a malignant tumor that develops in cells in the breast," and 63% knew that "Every lump found during BSE is a tumor." The majority of respondents (78%) were not aware that "The right time to perform BSE is one week before menstruation every month and on a regular basis." After receiving the education, 97% of the respondents were aware of "Breast cancer is a malignant tumor that develops in cells in the breast," and 13% already knew that "Every lump found during BSE is a tumor." The majority of respondents (41%) still did not know "The right time to perform BSE is one week before menstruation every month and on a regular basis." From the data, it can be concluded that the percentage of awareness regarding "Breast cancer is a malignant tumor that develops in cells in the breast" decreased by 3%, and the percentage of awareness regarding "Every lump found during BSE is a tumor" significantly decreased by 50%. Moreover, the percentage of awareness regarding "The right time to perform BSE, which is one week before menstruation every month and on a regular basis," decreased by 37%.

Based on Table 2, before receiving health education through audio-visual media, the majority of respondents (94%) were aware that "Breast cancer is a malignant tumor that develops in cells in the breast," and 31% knew that "The older the age at first pregnancy, the higher the chance of developing breast cancer." A significant number of respondents (25%) were not aware that "The right time to perform BSE is one week before menstruation every month and on a regular basis." After receiving the education, all respondents (100%) were aware of "Breast cancer is a malignant tumor that develops in cells in the breast," and 6% already knew that "The older the age at first pregnancy, the higher the chance of developing breast cancer." The majority of respondents (47%) still did not know "The right time to perform BSE is one week before menstruation every month and on a regular basis." From the data, it can be concluded that the percentage of awareness regarding "Breast cancer is a malignant tumor that develops in cells in the breast" increased by 3%, and the percentage of awareness regarding "The older the age at first pregnancy, the higher the chance of developing breast cancer" significantly decreased by 25%. Moreover, the percentage of awareness regarding "The right time to perform BSE, which is one week before menstruation every month and on a regular basis," increased by 22%. (Table 2)

Table 1. The score of the pre-test and post-test results before and after being given education through leaflets and audio-visual media on students' knowledge of BSE

	Leaflet			Audiovisual		
	Less knowledge	Good knowledge	Total	Less knowledge	Good knowledge	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Before	4 (12.5)	28 (87.5)	32 (100)	12 (37.5)	20 (62.5)	32 (100)
After	1 (3.13)	31 (96.88)	32 (100)	2 (6.25)	30 (93.75)	32 (100)

Table 2. The score of pre-test and post-test results through leaflet and audiovisual media according to the question points of the knowledge questionnaire about BSE

Knowledge	Leaflet				Audiovisual			
	Before		After		Before		After	
	Good n (%)	Less n (%)	Good n (%)	Less n (%)	Good n (%)	Less n (%)	Good n (%)	Less n (%)
Breast cancer is a malignant tumor that develops in cells in the breast	32 (100)	0 (0)	31 (97)	1 (3)	30 (94)	2 (6)	32 (100)	0 (0)
Not breastfeeding can increase the chance of developing breast cancer	13 (41)	19 (59)	25 (78)	7 (22)	18 (56)	14 (44)	27 (84)	5 (16)
The recommended time to do BSE is one week before menstruation every month and regularly	7 (22)	25 (78)	19 (59)	13 (41)	8 (25)	24 (75)	15 (47)	17 (53)
The way to BSE is quite simple, fast, cheap, easy, doesn't cause pain and doesn't cause embarrassment to be examined by yourself	30 (94)	2 (6)	32 (100)	0 (0)	27 (84)	5 (16)	32 (100)	0 (0)
It is better to do other activities than to do BSE	29 (91)	3 (9)	28 (88)	4 (13)	28 (88)	4 (13)	29 (91)	3 (9)
The first sign of breast cancer that appears is a small lump in the breast that doesn't feel painful	27 (84)	5 (16)	31 (97)	1 (3)	23 (72)	9 (28)	24 (75)	8 (25)
The factor that most influence a person to get breast cancer is because of contracting it from other people	28 (88)	4 (13)	24 (75)	8 (25)	25 (78)	7 (22)	28 (88)	4 (13)
BSE is routinely performed by women of childbearing age when they reach the age of 20	10 (31)	22 (69)	9 (28)	23 (72)	19 (59)	13 (41)	21 (66)	11 (34)
BSE is only for people with breast cancer	25 (78)	7 (22)	31 (97)	1 (3)	28 (88)	4 (13)	29 (91)	3 (9)
The presence of pain or soreness in the breasts is not a normal symptom that occurs in women in general	8 (25)	24 (75)	20 (63)	12 (38)	12 (38)	20 (63)	9 (28)	23 (72)
The older the age at first pregnancy, the higher the chance of developing breast cancer	19 (59)	13 (41)	29 (91)	3 (9)	22 (69)	10 (31)	30 (94)	2 (6)
Every lump found during BSE is a tumor	20 (63)	12 (38)	4 (13)	28 (88)	13 (41)	19 (59)	10 (31)	22 (69)
Rarely cleaning the breast can increase the occurrence of breast cancer	18 (56)	14 (44)	11 (34)	21 (66)	8 (25)	24 (75)	21 (66)	11 (34)

Table 3. The score of pre-test and post-test results before and after being given education through leaflets and audio-visual media on student attitudes

	Leaflet			Audiovisual		
	Negative attitude n (%)	Positive attitude n (%)	Total n (%)	Negative attitude n (%)	Positive attitude n (%)	Total n (%)
Before	12 (37.5)	20 (62.5)	32 (100)	16 (50)	16 (50)	32 (100)
After	16 (50)	16 (50)	32 (100)	16 (50)	16 (50)	32 (100)

Table 4. The score of the pretest and posttest results through the leaflet media according to the attitude questionnaire question points regarding BSE

Attitude	Leaflet				Audiovisual			
	Before		After		Before		After	
	Negative n (%)	Positive n (%)	Negative n (%)	Positive n (%)	Negative n (%)	Positive n (%)	Negative n (%)	Positive n (%)
Breast self-examination (BSE) is an examination to detect breast cancer early	31 (97)	1 (3)	32 (100)	0 (0)	32 (100)	0 (0)	32 (100)	0 (0)
As an adult woman, I must always be aware of breast cancer	31 (97)	1(3)	32 (100)	0 (0)	32 (100)	0 (0)	31 (97)	1 (3)
I will do a self-examination earlier because breast cancer is difficult to cure	31 (97)	1 (3)	31 (97)	1 (3)	32 (100)	0 (0)	31 (97)	1 (3)
I will not be interested in counseling on Breast Self-Examination BSE	28 (88)	4 (13)	30 (94)	2 (6)	30 (94)	2 (6)	31 (97)	1 (3)
I'll just keep quiet if my breasts get bigger, as long as my breasts don't feel sore	10 (31)	22 (69)	16 (50)	16 (50)	14 (44)	18 (56)	26 (81)	6 (19)
I will always check my own breasts on the 5-10th day of my menstrual cycle, counting from the first day regularly every month	18 (56)	14 (44)	26 (81)	6 (19)	19 (59)	13 (41)	30 (94)	2 (6)
If I do a Breast Self-Examination, I will do it sequentially according to the stages	30 (94)	2 (6)	32 (100)	0 (0)	27 (84)	5 (16)	30 (94)	2 (6)
If your friend does BSE, then you can also imitate their behavior by taking part in BSE every month	28 (88)	4 (13)	30 (94)	2 (6)	26 (81)	6 (19)	30 (94)	2 (6)
“Women must frequently update information regarding health development, prevention, and treatment“	31 (97)	1 (3)	31 (97)	1 (3)	32 (100)	0 (0)	30 (94)	2 (6)
I will do the BSE examination if there is enough equipment	2 (6)	30 (94)	11 (34)	21 (66)	5 (16)	27 (84)	9 (28)	23 (72)
We are the ones who know and can feel the changes that are happening to our bodies	19 (59)	13 (41)	32 (100)	0 (0)	12 (38)	20 (63)	31 (97)	1 (3)
I don't need to do a BSE examination because I don't have a trigger factor for breast cancer	26 (81)	6 (19)	28 (88)	4 (13)	26 (81)	6 (19)	29 (91)	3 (9)
I am not interested in BSE examination	29 (91)	3 (9)	30 (94)	2 (6)	27 (84)	5 (16)	32 (100)	0 (0)
BSE examination will take up my time	27 (84)	5 (16)	30 (94)	2 (6)	27 (84)	5 (16)	30 (94)	2 (6)
I will always do BSE every month and continuously	21 (66)	11 (34)	32 (100)	0 (0)	26 (81)	6 (19)	29 (91)	3 (9)
The benefit of BSE is not only to detect breast cancer as early as possible, but to an advanced stage	29 (91)	3 (9)	32 (100)	0 (0)	29 (91)	3 (9)	30 (94)	2 (6)
It is better to carry out BSE only during pregnancy	29 (91)	3 (9)	30 (94)	2 (6)	31 (97)	1 (3)	31 (97)	1 (3)

Breast cancer will heal itself	29 (91)	3 (9)	30 (94)	2 (6)	28 (88)	4 (13)	31 (97)	1 (3)
With BSE, I no longer need to consult a doctor if I find abnormalities in my breasts	28 (88)	4 (13)	25 (78)	7 (22)	23 (72)	9 (28)	28 (88)	4 (13)
Only women who have a family with breast cancer need to do BSE	25 (78)	7 (22)	26 (81)	6 (19)	24 (75)	8 (25)	25 (78)	7 (22)
Blood/pus discharge from the nipples needs to be observed during BSE	26 (81)	6 (19)	32 (100)	0 (0)	30 (94)	2 (6)	31 (97)	1 (3)
BSE is not important to do because medical tools for detecting breast cancer are already sophisticated	29 (91)	3 (9)	31 (97)	1 (3)	26 (81)	6 (19)	28 (88)	4 (13)
Nipple discharge other than breast milk shouldn't be a concern as long as it doesn't cause pain	7 (22)	25 (78)	4 (13)	28 (88)	9 (28)	23 (72)	6 (19)	26 (81)
BSE will be beneficial for my health	30 (94)	2 (6)	30 (94)	2 (6)	31 (97)	1 (3)	32 (100)	0 (0)
BSE will be done if I remember	9 (28)	23 (72)	15 (47)	17 (53)	7 (22)	25 (78)	10 (31)	22 (69)
I will share information about BSE with others	25 (78)	7 (22)	27 (84)	5 (16)	23 (72)	9 (28)	30 (94)	2 (6)

The pre-test and post-test results for female student attitudes, before and after receiving education through leaflets and audio-visual media, are presented in Table 4. The results from students who received the leaflet treatment show a change in the negative category from 12 (37.5%) to 16 (50%), and in the positive category from 20 (62.5%) to 16 (50%). On the other hand, the audio-visual media does not show the same scores for both negative and positive categories, with each having 16 (50%). This indicates that there were only changes observed in the leaflet media before and after the education was provided.

This study aims to assess the effectiveness of leaflets and audio-visual media in increasing the knowledge and attitudes of young women at SMA N 1 Bukateja. Two different types of media were used as interventions: audio-visual media for one group and leaflets for the control group. These two media were given to separate groups of respondents. The study examines the differences in knowledge and attitudes between health education using leaflets and audio-visual media, which will be analyzed using the chi-square test.

Before being given health education using the respondent's attitude leaflet about BSE, all respondents (100%) knew "As an adult woman, I must always be aware of breast cancer." The majority of respondents (63%) did not know "We know best and can feel the changes that occur in our bodies." After being given health education, the majority of respondents (97%) knew "As an adult woman, I must always be aware of breast cancer." The minority of respondents (3%) did not know "We know best and can feel the changes that occur in our bodies." It can be concluded that before and after being given the questionnaire regarding "As an adult woman, I must always be aware of breast cancer," there was a slight decrease (3%), and in regard to "We know best and can feel the changes that occur in our bodies," there was a significant decrease (60%).

The results of the score of knowledge before and after being given education using the leaflet and audio-visual media are shown in Table 5. The results obtained a p-value of 1,000 which indicated that there was no significant relationship between the score of knowledge imparted by the education using leaflets and audio-visual media. The respondents presented that with the audio-visual media, they got an increase in knowledge of 1.033 times from the leaflets.

The results of the attitude scores before and after being given education using the media leaflet and audio-visual are shown in Table 6. The test result obtained a p-value of 1.000, indicating that there was no significant relationship between the attitudes given education using the media leaflet and media audio-visual. Respondents provided with the media audio-visual and leaflet showed an increase in attitude, with a p-value of 1.000.

Table 5. The relationship between knowledge before and after health education using leaflets and audio-visual media about BSE

	Before		After		p-value	RR
	Less	Good	Less	Good		
Leaflet	4 (12.5)	28 (87.5)	1 (3,13)	31 (96.88)	1.000	1.033
Audiovisual	12 (37.5)	20 (62.5)	2 (6.25)	30 (93.75)		

Table 6. The Relationship between attitudes before and after health education using leaflets and audio-visual media regarding BSE

	Before		After		p-value	RR
	Negative	Positive	Negative	Positive		
Leaflet	12 (37.5)	20 (62.5)	16 (50.0)	16 (50.0)	1.000	1.000
Audiovisual	16 (50.0)	16 (50.0)	16 (50.0)	16 (50.0)		

The results of the level of knowledge of the female students before and after being given BSE education using leaflets and audio-visual media at SMA Negeri 1 Bukateja. The first factor affecting knowledge was education, where the female adolescents did not receive materials related to Breast Self-Examination (BSE) from schools or health authorities. Apart from education, there were also other influencing factors, namely experiences, ages, and sources of information. Information can be obtained through many sources, one of which is health education. Health education that is not intensively carried out by health workers is one of the factors contributing to the lack of knowledge among young women.[20]

The results showed that the majority of the respondents had good knowledge of BSE examination and breast cancer before being given counseling. However, there was a decrease in their knowledge about the BSE examination after being given counseling with the leaflet media. The decrease in respondents' knowledge about BSE examinations could be influenced by their lack of understanding of BSE materials, resulting in difficulty in completing the pre-test and post-test. If there was a question that had never been studied or taught, it was very likely that the question was an extension of the material concept. It can be assumed that female teenagers could answer these questions if they had mastered the concept. Therefore, it is expected that they would not forget to understand the concept of the material.[21] Knowledge gained through the educational process can have a direct positive impact, thereby encouraging change and increasing knowledge in a short time. With advances in technology, various types of mass media are available that can influence people's knowledge of the latest information.[22]

If teenagers have a tendency to forget something that is not considered important or, in other words, is rarely remembered or repeated, the brain will tend to delete it. The repetition of the material is very important. By repeating the material to be studied, the brain will tend to enter that information into long-term memory, resulting in improved memory and better preparation.[23] Factors such as a non-conducive learning atmosphere, a weak learning base, an unsupportive learning environment, as well as poor design and delivery of subject matter can reduce student motivation. However, motivation is a psychological condition that spurs someone to take action. In the context of learning, motivation is needed to internally encourage students, ensure the continuity of the learning process, and provide guidance in achieving desired learning goals.[24]

Research conducted by Obasi et al. (2022) aimed to assess knowledge about breast cancer risk factors and prevention among high school girls in selected secondary schools in Anambra State. The results showed that the respondents had poor knowledge about the risk factors associated with breast cancer. Regarding knowledge about breast cancer prevention measures, the majority of the 195 students (69.6%) suggested breast self-examination for early detection, while at least 100 students (35.7%) suggested avoiding fatty foods as a preventive measure.[25] Furthermore, research by Novelia et al. (2021) aimed to identify the impact of BSE classes on BSE knowledge and practice in East Jakarta State High School students in 2020. The research results showed that BSE classes had an effect on BSE knowledge and practice in students, with a p-value $< \alpha = (0.000 < 0.05)$.[26]

The attitude of the female students before and after being given BSE education using leaflets and audio-visual media at SMA Negeri 1 Bukateja. Inculcating attitudes in young women play a very important role in building character from an early age through habituation and exemplification.[27] The cultivation of these attitudes is a top priority compared to the development of knowledge

and skills. Attitude is an expression of one's feelings regarding an object, whether it is liked or not, and attitude also describes beliefs in the various attributes and benefits of the object.[23,28] The factors that influence attitudes include personal experiences that occur suddenly or shockingly, leaving the deepest impression on a person's soul, the influence of other people considered important, motivation (which determines the level of intensity of human behavior), mass media (providing information that can form attitudes), as well as education in educational and religious institutions, which have an effect on attitude formation.[29]

The results show that the majority of the respondents had a good attitude towards Breast Self-Examination before being given counseling, and there was a decrease in attitude towards these indicators after being given counseling with the leaflet media. There was a decrease in the respondents' knowledge about Breast Self-Examination. It is possible for teenagers to cheat while doing the pre-test and post-test. This could be caused by the lack of self-confidence of the students in working on the questionnaires. It is usually caused by unpreparedness, either due to laziness and lack of time, or due to their unfamiliarity with BSE materials. Cheating is a disgraceful act that is very detrimental to the culprits themselves. Therefore, it would be nice if we were honest when working on the questionnaire.[30]

Furthermore, research by Khalip et al. (2021), aimed to identify knowledge and attitudes towards breast self-examination among undergraduate nursing students at public universities in Peninsular Malaysia. The results showed a significant relationship between overall knowledge about breast cancer and BSE ($p > 0.001$), attitude towards BSE ($p > 0.001$), and BSE experience ($p > 0.001$). In conclusion, nursing students have good knowledge about breast cancer but have never experienced BSE and have a negative attitude towards performing BSE.[31]

The effectiveness of the leaflets and audio-visual media in increasing the knowledge and attitudes of young women at SMA N 1 Bukateja. The control group in this study was given treatment in the form of providing information with the media leaflet. A leaflet is a print media consisting of a number of words, pictures, or photos and color arrangements. A leaflet is a medium that prioritizes visual messages.[23] The intervention group in this study was given treatment in the form of information with audio-visual media. Audio-visual media is a media that provides the appearance of moving images in the form of a set of images arranged in an orderly manner following a predetermined flow of movement at each increment of time. Additionally, the audio-visual media display size is very flexible and can be adjusted as needed by adjusting the distance between the screen and the player.[32]

The leaflets have some disadvantages when compared to the audio-visual media, one of which is that the media leaflet only includes images, while videos include both images and motion.[4] This difference can provide different information for some people, especially in the section explaining BSE steps. In the leaflet picture, only the steps are shown with a guide in the form of pictures, which can sometimes be difficult for respondents to understand. However, this becomes easier to understand when using the media video because videos are displayed directly, allowing respondents to better understand.[33]

The research results show that the media leaflet and audio-visual media have the same effectiveness in increasing adolescent knowledge about BSE. Health education with audio-visual media was effective in increasing the knowledge of young women, as teenagers can receive messages quickly and easily. Meanwhile, audio-visual media provides information that can be quickly and easily remembered, and it is received in a more interesting and dynamic way because teenagers can listen to and see the content, which makes them very enthusiastic and engaged.[34]

There is an important relationship between health education and respondents' attitudes towards BSE because health education about BSE is considered very important for respondents. By providing health education about BSE, it is hoped that the knowledge and ability of respondents to perform BSE can be increased, thereby preventing breast cancer.[35]

Alam's (2021) research findings support this statement, showing differences in the ability to detect breast cancer between the group that was given the leaflet and the group that was given audio-visual media. This study shows that the use of audio-visual media is more effective in increasing the knowledge and skills of young women than the use of leaflets.[36]

According to Sabeg (2019), knowledge and skills of young women in detecting breast cancer can be increased more effectively through audio-visual media compared to leaflet media, as leaflet media only provides limited information and can only be accessed visually. On the other hand, audio-visual media can provide more detailed and clear information, as well as examples of moving images that are easier for respondents to understand.[37]

Research by Lubis (2021) aimed to determine the effect of counseling on breast self-examination (BSE) with the use of video media on knowledge about the early detection of breast cancer in young women. The t-test conducted showed a p-value of $0.000 < 0.05$, indicating a significant difference in knowledge scores before and after being given BSE education using video.[38]

Another research by Saraswati et al. (2019) aimed to determine the influence of the media WhatsApp and leaflets on BSE behavior in high school female students in Kendari City. The results showed that in the WhatsApp and leaflet groups, there were differences in the influence on BSE knowledge (p-value < 0.004). However, there was no difference in the effect on BSE attitudes (p-value < 0.153). In conclusion, there are differences in knowledge, attitudes, and practices within and between groups. WhatsApp is an effective medium for increasing knowledge and practice. Both leaflets and WhatsApp media are equally effective in increasing BSE attitudes in high schools in Kendari.[39]

CONCLUSION

The majority of female adolescents showed a change in knowledge categories when provided with education using leaflets and audio-visual media. Both media types had an impact on knowledge, with some respondents showing a shift to the "less" category and others to the "good" category. Similarly, attitudes among female adolescents were influenced by both educational leaflets and audio-visual media. The leaflets resulted in changes in the negative and positive categories, while the audio-visual media showed variations in both negative and positive attitudes.

The results of this research should be utilized by healthcare institutions in the Bukateja sub-district to optimize their services for the early detection of breast cancer. This can be achieved through the implementation of examination programs using either media leaflets or audio-visual materials. Educational institutions should also prioritize increasing the knowledge of young female students about the early detection of breast cancer and enhancing the skills of health or midwifery students in providing education on this topic, using media leaflets or audio-visual aids.

Future research needs to explore other media options for BSE education, apart from audio-visual materials and leaflets. For instance, the use of media such as WhatsApp has been found to be more effective than leaflets in previous studies, indicating its potential to enhance knowledge and attitudes regarding the early detection of breast cancer among young women.

REFERENCES

1. Gavric Z, Vukovic-Kostic Z. Assessment of Quality of Life of Women with Breast Cancer. Glob J Health Sci. 2016 Sep 1;8(9):52792.
2. Kemenkes RI. Profil Kesehatan Indonesia 2020 [Internet]. Kementrian kesehatan RI. 2021. 139 p. Available from: https://pusdatin.kemkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-Indonesia-Tahun-2020.pdf
3. Dinas Kesehatan Provinsi Jawa Tengah. Health Statistics. Vol. 1, Kemenkes RI. 2018. 146–147 p.
4. Bevers TB, Helvie M, Bonaccio et al. Breast Cancer Screening and Diagnosis , Clinical Practice Guidelines in Oncology. 2018;(11):1362–89.
5. Kang C, Leroith D, Gallagher EJ. Diabetes, Obesity, and Breast Cancer. 2018;159(September):3801–12.
6. Goldberg M, D'Aloisio AA, O'Brien KM, Zhao S, Sandler DP. Pubertal timing and breast cancer risk in the Sister Study cohort. Breast Cancer Res. 2020;22(1):1–11.
7. Darwati L, Nikmah K, Aziz MNA. Sosialisasi BSE (Pemeriksaan Payudara Sendiri) sebagai upaya awal pencegahan Ca Mamae. J Community Engagem Heal. 2021;4(2):325–31.
8. Hapsari F. Pengaruh Penyuluhan Kanker Payudara terhadap Minat Pemeriksaan Payudara Sendiri (BSE) pada Remaja SMAN 1 Jatinom. J Keperawatan dan Kebidanan. 2020;0231:57–66.
9. Dinas Kesehatan Provinsi Jawa Tengah. Profil Kesehatan Provinsi Jateng Tahun 2019. Dinas Kesehat Provinsi Jawa Teng [Internet]. 2019;3511351(24):61. Available from: https://dinkesjatengprov.go.id/v2018/storage/2020/09/Profil-Jateng-tahun-2019.pdf
10. Kemenkes RI. Laporan Nasional Riset Kesehatan Dasar. Kementrian Kesehat RI [Internet]. 2018;1–582. Available from: https://dinkes.kalbarprov.go.id/wp-content/uploads/2019/03/Laporan-Riskesdas-2018-Nasional.pdf
11. Kemenkes RI. Buletin Jendela Data dan Informasi Kesehatan: Situasi Penyakit Kanker [Internet]. Vol. 53, Kemenkes RI. 2015. 1689–1699 p. Available from: https://pusdatin.kemkes.go.id/resources/download/pusdatin/infodatin/infodatin-kanker.pdf
12. Syaparuddin S, Elihami E. Improving Student Learning Through the Curriculum. J Edukasi Nonform. 2020;1(1):56–64.
13. Heryani H. Efektifitas Leaflet Terhadap Peningkatan Keterampilan Tentang Pemeriksaan Payudara Sendiri (BSE) Pada Remaja Putri. J Ilmu dan Teknol. 2020;53(9):1689–99.
14. Patel M, Patel N. Exploring Research Methodology: Review Article. IJRR. 2019; 6(3):48-55.
15. Thewes B, Rietjens JAC, van den Berg SW, Compen FR, Abrahams H, Poort H, van de Wal

M, Schellekens MPJ, Peters MEWJ, Speckens AEM, Knoop H, Prins JB. One way or another: The opportunities and pitfalls of self-referral and consecutive sampling as recruitment strategies for psycho-oncology intervention trials. Psychooncology. 2018 Aug;27(8):2056-2059.
16. Sutton J, Austin Z. Qualitative Research: Data Collection, Analysis, and Management. Can J Hosp Pharm. 2015;68(3):226-31.
17. Nyklíček I. Research Methods in Health. Journal of Psychophysiology. 2012;14(2):126-8.
18. Bhatia MK. Data analysis and its importance. International Research Journal of Advanced Engineering and Science. 2017;2(1):166-8.
19. Heryana A. Buku Ajar Metodologi Penelitian pada Kesehatan Masyarakat. Bahan Ajar Keperawatan Gigi [E-book]. Jakarta;2020:1–187.
20. Łukasiewicz S, Czeczelewski M, Forma A, Baj J, Sitarz R, Stanisławek A. Breast Cancer-Epidemiology, Risk Factors, Classification, Prognostic Markers, and Current Treatment Strategies-An Updated Review. Cancers (Basel). 2021;13(17):4287.
21. Nabillah T, Abadi AP. Faktor Penyebab Rendahnya Hasil Belajar Siswa. Sesiomedika. 2019;659–63.
22. Anggraini, S dan Handayani E. Faktor-Faktor Yang Mempengaruhi Perilaku Pemeriksaan Payudara Sendiri (BSE) Pada Mahasiswi Non Kesehatan UIN Antasari Banjarmasin. Jurkessia. 2019;9(2):76-83.
23. Adi S, Soenyoto T, Sulaiman. The Implementation of Media in Teaching and Learning of Physical, Sport, and Health Education Subject. Journal of Physical Education and Sport. 2018;7(1):13-21.
24. Fatah M, Suud FM, Chaer MT. Jenis-Jenis Kesulitan Belajar Dan Faktor Penyebabnya Sebuah Kajian Komperehensif Pada Siswa Smk Muhammadiyah Tegal. Psycho Idea. 2021;19(1):89.
25. Obasi SC, Ilo IC, Agbapuonwu NEM. Knowledge of The Risk Factors and Prevention of Breast Cancer. 2022;11(1).
26. Novelia S, Aulya Y, Regiyanti E. The Effect of Breast Self-Examination (BSE) Class on Knowledge and Practice of Breast Self-Examination among Adolescent Girls. 2021;1(1):49–53.
27. Krivokapic M. Imitative Learning: the Teacher as a Role Model. Education and Self Development. 2018;13(4):11-9.
28. Marsia M, Sulistyawati D, Juniartati E, Akhmad AN. Psikoedukasi Pemeriksaan Payudara Sendiri (BSE) dalam Mendeteksi Kanker Payudara pada Remaja Putri. Poltekita J Pengabdi Masy. 2022;3(3):371–8.
29. Ali A, Jameel N, Baig NN, Muhammad S, Hyder Z, Imtiaz S, et al. Assessment of knowledge, attitude and practice regarding breast self-examination among females in Karachi. J Pak Med Assoc. 2020;70(11):1985–9.
30. Huang N, Chen L, He J, Nguyen QD. The Efficacy of Clinical Breast Exams and Breast Self-Exams in Detecting Malignancy or Positive Ultrasound Findings. Cureus. 2022;14(2): e22464.
31. Khalip, Isa, Masri, Rahman, Hussein and S. Knowledge And Attitude Toward Breast Self-Examination Among Young Adult Nursing Students In A Public University. The Malaysian Journal of Nursing. 2021;13(October):16–21.
32. Ambarwati ER, Rahmawati I, Mawarti T. The use of audiovisual promotion media towards the improvement of teenagers' knowledge and attitude about HIV/AIDS. IJPHS.2021;10(3):459-64.
33. Rahmatika SD. Gambaran Pengetahuan Dan Praktik Periksa Payudara Sendiri (BSE) Pada Mahasiswi Prodi Farmasi Stikes Muhammadiyah Cirebon Tahun 2021. Colostrum J Kebidanan. 2021;2(2):29–32.
34. Wijayanti N, Triyanta T, Ani N. Efektifitas Penyuluhan Kesehatan BSE Dengan Media Video Terhadap Pengetahuan Pada Remaja Putri Di Smk Muhammadiyah Cawas Klaten. J Ilmu Kesehat Masy Berk. 2020;2(1):49.
35. Janitra EF, Wijayanti K, Wahyuningsih IS, Apriyanti HW. Peningkatan Kualitas Hidup Pasien Kanker Payudara Melalui Program BESTCARE (Breast Cancer Wound and Palliative Care). JIPEMAS J Inov Has Pengabdi Masy. 2019;3(1):46.
36. Alam NE, Islam S, Ullah H, Molla T, Sen TC, Chowdhury K, et al. Evaluation of knowledge, awareness and attitudes towards breast cancer risk factors and early detection among females in Bangladesh : A hospital based cross-sectional study. PLoS ONE: 2021:16(9); e0257271
37. Sabeg P, Mehrabi E, Nourizadeh R, Poursharifi H, Mousavi S. The Effect of Counseling on Breast Cancer Awareness in Rural Iranian Women: a Randomized Controlled Clinical Trial. J Cancer Educ. 2019;34(6):1083–91.
38. Lubis LS, Susanti. Pengaruh Penyuluhan Pemeriksaan Payudara Sendiri (BSE) Dengan Penggunaan Media Video Terhadap Pengetahuan Tentang Deteksi Dini Kanker Payudara Pada Siswi Ma Pondok Pesantren An Ni'mah Batam. Zona

Kebidanan: 2021;11(3):1-13.

39. Saraswati PS, Tasnim, Sunarsih. Pengaruh Media Whatsapp Dan leaflet Terhadap Perilaku Pemeriksaan Payudara Sendiri Pada Siswi Sekolah Menengah Atas Di Kota Kendari. Al-Sihah Public Heal Sci J. 2019;11(2):107–17.