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The effectiveness of health promotion (audiovisual and leaflet) on adolescents' behavior regarding breast self-examination

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ABSTRACT

Introduction: Breast cancer is a leading cause of mortality among women worldwide. Early Breast Self-Examination (BSE) detection can be crucial in reducing late-stage diagnosis and improving survival rates. This study aims to evaluate the effectiveness of audiovisual media and leaflet-based health promotion on adolescents' knowledge, attitudes, and practices regarding breast self-examination.

Research Methodology: This type of research is quantitative. The design used is the pre-test-posttest control group design, which is considered relevant to the assessment of health education or training initiatives. The sampling method used is random sampling. The paired t-test was used for data analysis, and the independent t-test was used to compare the variation in knowledge scores between the two treatments.

Result: Paired tests showed that the average knowledge score of the V2 group was higher than that of the V1 group (20.934 vs. 10.208) in the pre-test to post-test-1, with a significant increase in knowledge ($p<0.05$) between the two groups. Similarly, the average knowledge score of the V2 group was higher than that of the V1 group (19.646 vs. 7.183) in the pre-test to post-test-2, and their attitude change was more significant than that of the V1 group (7.980 vs. 2.765). However, in the pre-test to post-test-1, the attitude change between the V1 and V2 groups was insignificant ($p>0.05$). Likewise, the average attitude change score of the V2 group in the pre-test to post-test-2 was higher than that of the V1 group (6.555 vs. 2.009), although the difference was not statistically significant ($p>0.05$).

Conclusion: This study concludes that the leaflet approach to adolescents' behavior regarding breast self-examination (BSE) substantially impacts improving knowledge and attitudes about the effectiveness of health promotion before and after its implementation.

Keywords: adolescents, breast self-examination, health promotion (audiovisual and leaflet)

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INTRODUCTION

Breast cancer remains one of the leading causes of mortality among women globally. Early detection is a critical strategy for reducing the risk of advanced-stage diagnosis and improving survival rates. Breast Self-Examination (BSE) is a simple, cost-effective method that empowers individuals to detect abnormalities in their breast tissue early (Conway *et al.*, 2024). Despite its importance, the practice and awareness of BSE among adolescents remain low due to insufficient knowledge and a lack of exposure to educational resources. Breast cancer is one of the most common cancers worldwide and remains a significant cause of mortality among women. Early detection is crucial in improving survival rates, and one effective method for early detection is Breast Self-Examination (BSE) (Xiao et al., 2024). BSE allows individuals to detect potential breast abnormalities and seek medical attention early. However, many adolescents lack knowledge and awareness about BSE and, as a result, may not engage in this vital self-care practice. Breast cancer remains one of the leading causes of morbidity and mortality among women globally (Simons-Morton *et al.*, 2023). Early detection plays a vital role in improving survival rates. Breast Self-Examination (BSE) is a simple, cost-effective, and accessible method that allows individuals to detect early signs of breast abnormalities. Despite its importance, studies have shown that knowledge and practice of BSE among adolescents are still limited, which can hinder early detection efforts (Rukinah & Luba, 2021).

Health promotion strategies are key in raising awareness and influencing behavior, especially in young populations. Audiovisual materials and informational leaflets are commonly used tools in health education, as they provide accessible and engaging content (Mujito, Abiddin and Ulum, 2022). Audiovisual media can capture attention and improve understanding by combining visual and auditory stimuli. At the same time, leaflets offer a more tangible, detailed source of information that individuals can refer to at their own pace (Chambers and Frisby, 2019). Health promotion plays a vital role in enhancing awareness and encouraging preventive behaviors like BSE. Various methods, such as audiovisual media and printed materials like leaflets, are widely used to disseminate health information. Audiovisual media offer dynamic and engaging content that appeals to young audiences, while leaflets provide efficiently accessible, tangible resources for self-paced learning. However, the relative effectiveness of these two approaches in influencing adolescents' behavior has yet to be fully explored (Chambers and Frisby, 1995). Health promotion is essential to improve health knowledge and encourage positive health behaviors, particularly among adolescents. Audiovisual media and printed leaflets have been widely employed as educational tools to raise awareness and change behavior. Audiovisual media are engaging and can reach a broad audience effectively, while leaflets are an affordable and accessible way to distribute health-related information. However, the comparative effectiveness of these two strategies in promoting BSE among adolescents has yet to be fully explored (David Richards, 2024).

Adolescents' behavior regarding Breast Self-Examination (BSE) for early detection of breast cancer is still relatively low (Nilashi *et al.*, 2024). Considering that breast cancer now affects not only women over 30 years old but also young women and even teenagers, this behavior is essential for the early detection of breast cancer patients (Rajakumar *et al.*, 2024). Breast Self-Examination (BSE) is an easy and cost-effective early detection technique. The purpose of performing BSE is to enable healthcare professionals to promptly examine the breasts if any changes or abnormalities are detected. As it can lead to the loss of a vital organ in women, breast cancer is one of the most feared diseases among women. Although its growth is slow, this cancer is deadly. Women are advised to perform Breast Self-Examination (BSE), especially those aged 20 years and older. Women should remain vigilant about their breast health by regularly examining their breasts as an initial step in breast cancer prevention, as women aged 20 to 45 are at high risk of developing this disease (Yang *et al.*, 2024).

Avoiding exposure to certain risk factors and adopting a healthy lifestyle are two ways to prevent its onset. Considering the high incidence of breast cancer in Indonesia, healthcare

services must implement preventive and early detection measures. One of the factors contributing to the high number of breast cancer cases is the lack of awareness about the risks associated with the disease. This study aims to evaluate and compare the effectiveness of audiovisual and leaflet-based health promotion in improving adolescents' knowledge, attitudes, and practices regarding BSE. Understanding which method is more impactful can guide the development of targeted strategies to foster positive health behaviors and reduce the future burden of breast cancer.

RESEARCH METHODOLOGY

Quantitative research is this type of research. This design is used because it is considered relevant to assessing health education or training initiatives. The Pre-test-Posttest Control Group design is used. Two groups are randomly selected in this design, and then they are given a pre-test to determine the initial conditions and whether there are group differences. The population in this study were adolescents aged 15-19 years, sitting on the bench of SMAN 13 Bone Students. With a population of 82 female students. The random sampling approach, namely the sampling method carried out randomly, is used according to the researcher's preferences (inclusion criteria) so that the sample truly reflects the characteristics of the population. The sample in this study was 50 female students of SMAN 13 Bone. Sample Selection Method A total of 50 samples were used in this study, and sampling was carried out using inclusion and exclusion criteria. The inclusion criteria in this study were: Students aged 15-19 years, Students participating in leaflet method activities, Students participating in audiovisual method activities, Willing to be respondents until the end of the study, Willing to participate in SADARI examination education until completion. The exclusion criteria in this study were Students who had received education and Students who were menstruating.

It works because the information used is primary data. A questionnaire containing questions about the factors studied was used to collect data. The questionnaire was distributed before and after the intervention. The responses from the respondents were analyzed to produce statistical findings that could help explain the research findings. Method of data collection: Questionnaires help collect data. A questionnaire is a list of written questions intended to obtain information, answers, and responses from research subjects. Questionnaires are given before therapy (pre-test) and after treatment (post-test). The same questions are asked in both the pre-test and post-test. The purpose of the pre-test is to determine the respondent's initial level of knowledge, and the purpose of the post-test is to determine how therapy has affected the respondent's knowledge growth. The post-test is conducted after the session is completed. This is the result of calculating the knowledge score and attitude score after the results of data collection are assessed.

Data analysis and statistical tests that will be carried out in this study include univariate analysis and bivariate analysis. Data presentation data analysis will include data collection and analysis based on the results of research conducted at SMAN 13 Bone, where the author obtained data using interviews as a method to obtain an objective conclusion. For example, the author also uses observation and documentation methods to obtain data obtained through the documentation method. In this data analysis, the author uses data reduction, data presentation (data presentation), and drawing conclusions (or verification). Research ethics Because research participants are human, researchers consider ethics and legality in protecting and maintaining the confidentiality of respondents, with the approval of an ethics certificate. Ethics Certificate Number 211/KEP/EC/UNW/2022

RESULT

Table 1. Distribution of knowledge levels and Attitude

Pre-test		Post-tes-1		Post-test-2	
Knowledge Levels	V2	V1	V2	V1	V2
	n (%)	n (%)	n (%)	n (%)	n (%)
Enough	22 (95.7)	24 (88.9)	23 (100)	27 (100)	23 (100)
Not enough	1 (4.3)	3 (11.1)	0 (0)	0 (0)	0 (0)
Attitude					
Positive	23 (100)	23 (85.2)	21 (91.3)	23 (85.2)	19 (82.6)
Negative	0 (0)	4 (14.8)	2 (8.7)	4 (14.8)	4 (17.4)

Table 1 shows that the sample's knowledge level before the intervention was still low, with 4.3% in the V1 group and 11.1% in the V2 group. After the intervention, both the V1 and V2 groups showed an increase in knowledge across all samples. After the post-test was conducted again in both groups, the knowledge level did not change (remaining at 100%). Showed that positive attitudes before the intervention were higher in group V1 than in group V2. After the intervention, positive attitudes in V1 decreased, while in V2, there was no change in the decrease in positive attitudes.

Table 2. Normality test of variables - one-sample kolmogorov-smirnov test

Variabel	Mean p value			
	V1	V2	V1	V2
Knowledge				
Pre-test	71.27	62.16	.144	.117
Post-test-1	81.48	83.09	.217	.155
Post-test-2	78.45	81.80	.219	.167
Attitude				
Pre-test	75.92	67.80	.226	.282
Post-test-1	78.60	75.78	.248	.272
Post-test-2	73.91	74.36	.273	.284

Based on table 2. All data are expected after the normality test is completed. Therefore, it can be ascertained that all variables pass the parametric test requirements after the normality test produces a result of $p > 0.05$.

DISCUSSION

The researchers found a tangible impact on the growth of understanding regarding the efficacy of health promotion. Health promotion has an important role in encouraging behavioral change, increasing awareness, and encouraging people to adopt healthy habits. One of the main findings in this international journal is the significant impact on individual understanding of the efficacy of health promotion through various approaches taken. Health promotion is defined as the process of providing information, education, and communication to encourage individuals, groups, or communities to make behavioral changes to maintain and improve their well-being. As children enter puberty, it is important for them to learn about reproductive health as early as possible. This is especially true as they enter early adolescence. Children are often curious about new things during this stage. When the curriculum emphasizes general and religious elements, it is important to convey this knowledge, especially when they are not receiving sex education lectures in school. Health promotion aims to increase understanding of the factors influencing health and how individuals can prevent disease through healthy habits. Significant positive impact on the growing public understanding of the efficacy of health promotion (Suprapto et al., 2022). This increased understanding contributes to positive behavioral changes and improved quality of life. Therefore, ongoing information dissemination efforts based on practical approaches are important to expand this understanding on a broader scale (Suprapto, 2022).

Women of childbearing age who are at high risk for breast cancer have a high level of knowledge about BSE. As they age, their understanding and perspectives will also change, increasing the knowledge they acquire (Maureen *et al.*, 2024). Several questions about puberty, sexual violence, prevention of sexual abuse, and adolescents and reproductive health were among the knowledge components examined in this study (Siebers *et al.*, 2024). Providing access to helpful audio materials to women of childbearing age can improve their understanding of how to perform breast self-examination. Breast cancer prevention efforts through BSE and the implementation of a healthy lifestyle. In addition, videos can explain reproductive health more quickly and convey facts in animated form. Although the content is concise and easy to read, it is still full of valuable details. Ultimately, this information offers a new cognitive basis for the development of knowledge on this matter, as evidenced by the study findings, which showed that the level of knowledge of each group increased after the intervention (Hossain *et al.*, 2023).

Public understanding of the efficacy of health promotion is influenced by various interventions such as health education, effective communication, social media, and consistent campaigns. This understanding is related to the extent to which individuals understand the benefits of implementing healthy habits and their acceptance of information provided through various promotional methods (Fang *et al.*, 2023). Understanding the efficacy of health promotion significantly impacts behavioral change and improves community well-being. Effective health promotion programs raise awareness and facilitate sustainable, healthy lifestyle changes. A study showed that success factors in health promotion include effective communication, sufficient budget, and empowering individuals to increase their self-efficacy in maintaining health (Norouzi Ghehi *et al.*, 2024). One important finding is that health promotion interventions can improve individuals' understanding of the importance of a healthy lifestyle. For example, interventions that include clear information about healthy eating and disease prevention can encourage individuals to adopt healthier behaviors, such as reducing unhealthy food consumption or increasing physical activity (Chen *et al.*, 2024). When supported by effective communication and adequate resources, these programs can produce better outcomes in reducing chronic disease risk factors and improving quality of life (Alshafie *et al.*, 2024).

A deeper understanding of the efficacy of health promotion impacts the level of individual knowledge and their ability to change risky behaviors into health-promoting behaviors (Goutelle *et al.*, 2024). This shows the importance of a holistic approach to health promotion, which combines education, empowerment, social support, and a conducive environment. The attitude of adolescent girls toward breast self-examination (SADARI) is significantly influenced by health education using leaflet media; after the intervention, there was an increase in attitude results (Ashraf et al., 2024). After receiving health education through leaflet media, the level of female students' knowledge increased to the very good category. The general benefits of electronic media (audiovisual) are that it can create a more lively environment, appear more attractive, and can be used to describe a particular procedure more realistically (Ji *et al.*, 2024). Audiovisual media for health education can help adolescent girls learn faster and easier. Audiovisual media is easy to remember, well-received, and more interesting than boring because it allows adolescents to hear and see, which makes them very interested in the content and encourages them to watch the entire video. The definition, purpose, time, and steps of BSE will all be explained in detail to adolescents through the film. The level of adolescent knowledge increased to the outstanding category after health education was delivered through video media.

CONCLUSION

Research shows that understanding the efficacy of health promotion significantly impacts individual behavior change toward a healthier lifestyle. Various factors such as effective communication, adequate resource ownership, and individual empowerment through increased

self-efficacy play an important role in supporting the success of health promotion. Interventions designed with the right approach can encourage individual awareness of the importance of a healthy lifestyle and reduce risk factors for chronic diseases. The results of the study also underline that successful health promotion does not only depend on the delivery of information but also the fulfillment of resource needs, environmental support, and active involvement of individuals in positive behavioral change. Therefore, a strong understanding of health promotion efficacy can increase the program's effectiveness. Strengthening Communication Channels Health promotion programs must strengthen communication channels so that all levels of society can receive the information delivered well. An inclusive communication approach and using media appropriate to the target audience's characteristics will increase understanding and acceptance of the message. It is recommended that each health promotion program be designed based on an analysis of the needs and characteristics of the target audience. This helps identify obstacles and opportunities to implement health promotion effectively.

Conflict of Interest

The authors declare that they have no competing interests.

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