KESANS: International Journal of Health and Science
2808-7178 / 2808-7380
http://kesans.rifainstitute.com/index.php/kesans/index

Impact of Animated Video–Based Education on Breast Care Knowledge Among Female University Students at Bale Bandung University

[1]Siti Solihat Holida*, [2]Budiman, [3]Nadirawati, [4]Murtiningsih, [5]Lina Safarina
[1]Department of Community Nursing, Universitas Bale Bandung, Indonesia*; email: ssolihat044@gmail.com
[2]Master of Nursing Study Program, Universitas Jenderal Achmad Yani Cimahi, Indonesia; email: budiman_1974_@yahoo.com
[3]Master of Nursing Study Program, Universitas Jenderal Achmad Yani Cimahi, Indonesia; email: nadirawati@lecture.unjani.ac.id
[4]Master of Nursing Study Program, Universitas Jenderal Achmad Yani Cimahi, Indonesia; email: murtysudiyono@gmail.com
[5]Master of Nursing Study Program, Universitas Jenderal Achmad Yani Cimahi, Indonesia; email: linasafarina.1976@gmail.com
*Correspondence

Article Information
Submitted: **05 April 2026**
Accepted: **11 April 2026**
Publish: **15 April 2026**

Keywords: Community Nursing; Breast Care Education; Health Promotion Model; Animated Video; Female University Students;

Abstract
Introduction: *Adequate knowledge of breast care is essential for young women to support early prevention of breast health problems, including breast cancer. Effective and engaging nursing health education strategies are needed to improve students' understanding.* ***Objective:*** *This study aimed to examine the effectiveness of Health Promotion Model–based animated video education in improving breast care knowledge among female university students.* ***Method:*** *A quasi-experimental study with a pretest–posttest control group design was conducted among first-year female students at Universitas Bale Bandung. A total of 122 participants were divided into an experimental group (n = 60) and a control group (n = 62). The experimental group received a 13-minute animated educational video, while the control group received no intervention. Knowledge was measured using a validated questionnaire and analyzed using the Wilcoxon test with a significance level of 0.05.* ***Result and Discussion****: The experimental group showed a significant increase in mean knowledge scores after the intervention, whereas the control group showed no improvement and tended to experience a decrease. The findings indicate that animated video education effectively enhances students' understanding of breast care.* ***Conclusions:*** *Health education using animated video is effective in increasing breast care knowledge among female university students and can be applied as an alternative nursing strategy in campus-based health promotion programs.*

How to Cite **Siti Solihat Holida, Budiman, Nadirawati, Murtiningsih, Lina Safarina/Impact of Animated Video–Based Education on Breast Care Knowledge Among Female University Students at Bale Bandung University/Vol. 5, No. 7, 2026**
DOI https://doi.org/10.54543/kesans.v5i7.619
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **CV. Rifainstitut/KESANS: International Journal of Health and Science**

Introduction

Breast health is an important part of women's health that needs attention from adolescence to early adulthood. One of the important efforts in maintaining breast health is through increasing knowledge about *breast care* , which includes understanding breast hygiene, awareness of changes or abnormalities, and basic care practices as a form of prevention of breast health problems. This knowledge is the initial foundation in shaping individual awareness of the importance of maintaining breast health independently.

Globally, breast cancer is the type of cancer with the highest incidence rate in women. Data from the International Agency for Research on Cancer through GLOBOCAN 2020 recorded more than 2.26 million new cases with about 685,000 deaths due to breast cancer worldwide (IARC, 2021; Sung, 2021). The World Health Organization also reports that breast cancer is the most common cancer in women with an incidence trend that continues to increase every year (WHO, 2023). This increase is related to various risk factors such as unhealthy diet, obesity, lack of physical activity, and low awareness of breast health.

In Indonesia, breast cancer is also a major health problem in women with a high incidence rate compared to other types of cancer (Ferlay, 2022). The high incidence and death rate due to breast cancer is inseparable from the delay in diagnosis, where most cases are still found at an advanced stage. This condition is closely related to the low knowledge and awareness of women, especially in the younger age group, about health and *Breast care*. Therefore, increasing knowledge from the age of students is a more realistic and measurable preventive step in an effort to control breast health problems.

This condition is also reflected in West Java Province, where breast cancer is still one of the diseases with a high prevalence in women of productive age (West Java Provincial Health Office., 2023). This is an important concern for higher education institutions, including Bale University Bandung (UNIBBA), which has a female student population in the late teens to early adulthood age range who are in an important phase of shaping health behaviors.

Knowledge is the main cognitive factor that underlies the formation of health behaviors. Individuals with a good level of knowledge will be better able to understand the importance of maintaining breast health and practicing *breast care* independently. This is in line with the Health Promotion Model which states that cognitive factors, including knowledge, influence individuals in making decisions related to health behaviors. In this model, components such as *perceived benefits* and *cues to action* play a role in encouraging individuals to adopt health-promoting behaviors. Therefore, increasing knowledge through health education is the first step in shaping long-term health awareness and behavior.

Effective health education is greatly influenced by the methods and media of information delivery. Students as the digital generation tend to be more responsive to visual and interactive learning media. Animated video is one of the educational media that is considered effective because it is able to combine visual and audio elements simultaneously. Based on *Cognitive Theory of Multimedia Learning* presented by Mayer (2021), the use of animation media can improve information processing and knowledge retention. Some studies have also shown that animated videos are more effective in improving health knowledge than conventional media (Hansen, Jensen, Schmidt, & Strøm, 2024; Knapp, Benhebil, & Evans, 2022).

Previous research has shown that health education has a significant role in improving related knowledge *Breast care*. Study by Aurilia (2023) shows that education on breast self-examination (SADARI) significantly increases adolescents' knowledge about early detection of breast cancer. In line with that, research by Cahyati et al. (2024) found that animated video-based education was more effective in improving knowledge and skills compared to conventional media, demonstrating the potential of multimedia approaches in improving health learning outcomes.

Although various studies related to breast health education have been conducted, research that specifically examines the effect of animation video-based education on increasing *breast care* knowledge among students in the Bandung Regency area is still limited. Therefore, this study aims to analyze the influence of education using animated videos on increasing knowledge about *breast care* in students of Bale University Bandung.

Method

This study uses a quasi-experimental design with an approach *Pretest–Posttest with Control Group*. This design was chosen because it did not conduct full randomization of the subjects, but still involved control groups as comparators to minimize bias and evaluate the effects of the intervention more objectively (Creswell, J. W., & Creswell, 2023). The research aims to evaluate the influence of education through video-based animation *Health Promotion Model* (HPM) Nola J. Pender on student knowledge of breast care (Pender, 2015). The research population was all female students at level I of Bale University Bandung (UNIBBA) from ten study programs (n = 183). Samples were determined using total sampling with purposive selection based on inclusion and exclusion criteria. A total of 122 students met the criteria and became the final sample, which was then divided into an experimental group (n = 60) and a control group (n = 62). Group division was carried out systematically based on student identification numbers (odd and even) without full randomization.

The independent variable is education using HPM-based animated videos, while the dependent variable is the level of knowledge about breast care. Data were collected using a closed-ended questionnaire developed based on breast care knowledge indicators. The initial instrument consisted of 45 items and after going through the validity test, 21 valid items were obtained which were used as the final instruments. The validity of the instrument includes the validity of the content through *Expert Judgment* and empirical validity using the Pearson Product Moment correlation test (Arikunto, 2019). Reliability tests using Cronbach's Alpha showed a value of $\alpha = 0.909$, which indicates high internal consistency (Scott, 2022).

The research was carried out through the pretest stage, intervention in the form of a 13-minute animated video, and posttest which was carried out one week after the intervention. The data were analyzed using descriptive statistics and the Wilcoxon test because the data were not normally distributed based on the Shapiro–Wilk test (Ghasemi, A., & Zahediasl, 2012), with a significance level of 0.05. This research was carried out by paying attention to the ethical principles of research in humans. All participants gave their consent after obtaining an explanation of the objectives and procedures of the research. Participation is voluntary, and data is kept confidential and presented anonymously. The animated video was developed based on key constructs of the Health Promotion Model, particularly perceived benefits and cues to action, which were

integrated into the educational content to enhance students' engagement and understanding.

Result and Discussion

1. Results

The results of descriptive statistical analysis showed a change in students' knowledge scores about breast care in the experimental group after being given an educational intervention using animated videos. In the experimental group (n = 60), the median value of the knowledge score increased from 14 on the pretest to 15 on the posttest, with the mean value increasing from 14.03 ± 3.35 to 15.68 ± 3.15. The score range also shows a tendency to increase the minimum score from 7 to 9, while the maximum score remains at the highest score (21).

In contrast, in the control group (n = 62) that were not given intervention, the knowledge score did not show a pattern of improvement. The median score only increased by one point from 13 to 14, but the average score actually decreased from 14.64 ± 4.38 in the pretest to 13.06 ± 4.36 in the posttest. In addition, the minimum score in the control group decreased from 5 to 2, indicating a decrease in knowledge in some respondents.

The results of the Wilcoxon Signed-Rank Test showed a significant difference between pretest and posttest knowledge scores in the experimental group (p = 0.001), which indicates that the educational intervention of animated videos has a significant influence on improving student knowledge. In the control group, a statistically significant difference was also found (p = 0.010), but this difference led to a decrease in the average knowledge score, so it did not show a positive effect on the improvement of knowledge.

2. Discussion

The results of the study show that health education using animated videos based on the Health Promotion Model is effective in increasing students' knowledge about *Breast care*. In the experimental group, there was an increase in the average knowledge score from pretest to posttest, and the difference was proven to be significant based on the Wilcoxon test. On the other hand, in the control group, no increase in knowledge was found, even the average score showed a downward trend. These findings confirm that educational interventions play an important role in improving students' health knowledge, especially in the late teens age group (Notoatmodjo, 2020). The difference can be seen in Figure 1.

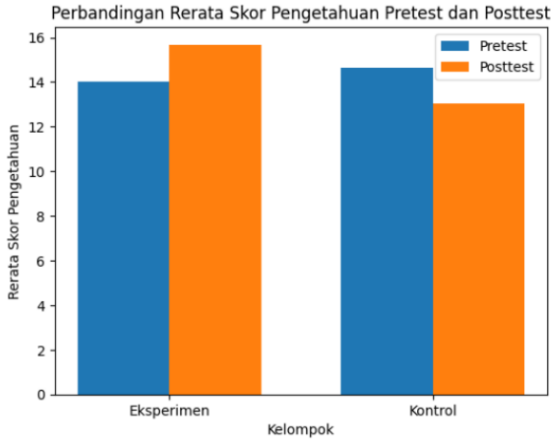

Figure 1 Comparison of Average Pretest and Posttest Knowledge Scores in the Experimental and Control Groups

The implementation of the Health Promotion Model in this study is reflected in the design of the educational media used. Animated videos are developed with emphasis on the main components of HPM, in particular *perceived benefits* and *Cues to action*. Information on the benefits of breast care is presented clearly and systematically to increase student awareness, while the visual and audio elements in the video serve as *Cues to action* which is able to attract attention, increase focus, and facilitate the process of receiving information. Thus, although the HPM component was not directly measured as a study variable, its integration in the intervention design contributed to the observed increase in knowledge (Pender, 2015). The integration of these components allows for an increase in student understanding, which is reflected in an increase in knowledge scores in the experimental group.

An increase in knowledge scores in the experimental group showed that a theory-based educational approach had higher effectiveness than without intervention. Within the framework of HPM, increasing knowledge is the initial stage in forming an individual's commitment to health-promoting behaviors (Pender, 2015). Good knowledge will increase the readiness of individuals to understand the benefits of health measures and encourage the formation of awareness of the importance of breast care. Although this research focuses on the cognitive aspect, the resulting increase in knowledge has the potential to be the basis for future changes in health behavior.

The effectiveness of animated videos in increasing knowledge can also be explained through *Cognitive Theory of Multimedia Learning*. This theory states that the integration of visual and auditory channels allows for more optimal information processing and reduces cognitive burden, thereby improving information comprehension and retention compared to text-based or lecture-based methods (Mayer, 2021). This is also supported by previous research that shows that animated video media is effective in improving the understanding and recall of health information (Hansen et al., 2024; Knapp et al., 2022). In the context of this research, the presentation of material through a combination of images, text, and sound helps students in understanding the concept *Breast care* more comprehensively.

The characteristics of respondents who are included in the group of late adolescents and the digital generation also support the effectiveness of video media as a means of health education. Students tend to be more interested and easily receive information presented visually and interactively. In contrast, the control group that did not receive structured education stimulus did not show an increase in knowledge. In fact, the decline in scores in some respondents can be explained through the concept *Forgetting effect*, which is the tendency to decline memory when information is not amplified through repetition or continuous exposure (Mayer, 2021).

Analysis based on indicators shows that the highest score increase is in the aspect of healthy breast characteristics, definition *Breast care*, and the basic components of breast care. This shows that the material is practical and contextual in nature is easier for respondents to understand. In contrast, indicators related to anatomy and physiology show lower improvements, indicating that more complex material requires a more in-depth educational approach or repetition to achieve optimal understanding. This is in line with learning theory that emphasizes the importance of reinforcement and repetition in improving understanding of complex concepts (Mayer, 2021).

The results of this study are consistent with previous studies that reported that animated video media is more effective than conventional methods in improving health knowledge and individual readiness to perform breast care (Albeshan, 2023)(Nurfajriah,

2024). Audiovisual media has been proven to be able to increase the understanding, motivation, and involvement of participants in the learning process, especially in young age groups.

Practically, these findings show that animated videos based on health promotion theory can be an effective educational strategy in improving breast health knowledge in a college setting. This media can be integrated in campus health promotion programs as a preventive effort against breast health problems. However, this study has limitations, including a quasi-experimental design that does not involve full randomization and no direct measurement of the HPM construct. Therefore, further research is recommended to quantitatively measure HPM components such as *perceived benefits*, *self-efficacy*, and *cues to action*, as well as evaluate the long-term impact on health behavior changes. These findings also reinforce that theoretical and technology-based educational approaches have great potential in increasing the effectiveness of health promotion, especially in the student population as a productive age group.

Conclusion

This study concludes that health education using animated videos based on the Health Promotion Model (HPM) is effective in increasing students' knowledge about breast care. The experimental group showed a significant improvement in average knowledge scores between pretest and posttest based on the Wilcoxon test, while the control group did not experience an improvement and tended to show a decrease in scores. These findings show that theory-based educational interventions play an important role in improving health knowledge in late adolescent students.

Reference

Albeshan, S., Shubayr, N., & Alashban, Y. (2023). Assessment of knowledge and awareness about breast self-examination among university female students in Saudi Arabia. *Breast Cancer: Targets and Therapy*, 91-99.

Arikunto, S. (2019). *Prosedur Penelitian: Suatu Pendekatan Praktik* ((Ed. Revis). Jakarta: Rineka Cipta.

Aurilia, T. (2023). Effectiveness of health education on breast self-examination (BSE) on adolescents' knowledge about early detection of breast cancer. *Health Care Journal*.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* ((6th ed.)). SAGE Publications.

Dinas Kesehatan Provinsi Jawa Barat. (2023). *Profil kesehatan Provinsi Jawa Barat tahun 2023.* Bandung: Dinkes Jabar.

Ferlay, J., Ervik, M., Lam, F., Colombet, M., Mery, L., Piñeros, M., ... & Bray, F. (2020). Global cancer observatory: cancer today. *Lyon: International agency for research on cancer*, *20182020*, 557-567.

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians.,. *International Journal of Endocrinology and Metabolism*, *10(2)*, *486*. https://doi.org/https://doi.org/10.5812/ijem.3505

Hansen, S., Jensen, T. S., Schmidt, A. M., Strøm, J., Vistisen, P., & Høybye, M. T. (2024). The effectiveness of video animations as a tool to improve health information recall for patients: systematic review. *Journal of Medical Internet Research*, *26*, e58306. https://doi.org/10.2196/58306

IARC. (2021). Cancer today: Breast cancer statistics.

Knapp, P., Benhebil, N., Evans, E., & Moe-Byrne, T. (2022). The effectiveness of video animations in the education of healthcare practitioners and student practitioners: a systematic review of trials. *Perspectives on medical education*, *11*(6), 309-315. https://doi.org/https://doi.org/10.1007/s40037-022-00736-6

Mayer, R. E. (2021). *5 - Cognitive Theory of Multimedia Learning*. Cambridge University Press.

Notoatmodjo, S. (2020). *Promosi Kesehatan dan Perilaku Kesehatan (Edisi Revisi).* Jakarta: Rineka Cipta.

Nurfajriah, N. (2024). Literature Review: Epidemiologi Kanker Payudara Penanggulangan Dan Upaya Pencegahan. *Jurnal Kesehatan Masyarakat*, *12*. https://doi.org/https://doi.org/10.14710/jkm.v12i1.38762

Pender, N. J. (2015). *Health Promotion in Nursing Practice* (8th ed.). Boston: Pearson Education.

Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, *71*(3), 209-249. https://doi.org/10.3322/caac.21660

WHO. (2023). *Breast cancer: Factsheet*. Geneva: