

# The effect of videoscribe and simulation videos media education on promoting healthy lifestyle behavior for breast cancer prevention

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**Abstract.** Adopting healthy lifestyle modifications is an important strategy to prevent breast cancer and delay the severity. Meanwhile, health education is a key effort to prevent the disease, and innovative educational media can enhance the effectiveness. This study aims to determine the difference in the effect of videoscribe and simulation video media education on promoting healthy lifestyle behavior to prevent breast cancer. The method used was a true experiment with a randomized pretest-posttest control group design. A sample of 50 was selected using a proportional random sampling technique. The intervention group received videoscribe, while the control group received a simulation video. Analysis was conducted using the Kruskal-Wallis, a significance level at  $p < 0.05$ . The results showed that the majority presented healthy lifestyle behavior before and after the intervention in the videoscribe (76% and 78%) and in the simulation video group (76% and 72%). The videoscribe had a significant ( $p=0.01 < 0.05$ ), while the simulation video had no effect ( $p=0.46 > 0.05$ ). A comparison between the two media produced a p-value of  $0.13 > 0.05$ , confirming no significant difference. In conclusion, there is no difference between the effects of videoscribe and simulation video on promoting healthy lifestyle behavior for breast cancer prevention.

## 1 Introduction

Breast cancer is a health trend and issue affecting women between 15 and 39 years, in 2021, the highest incidence rates were in Thailand (11.78 per 100,000), Singapore (8.46), and Malaysia (7.64) [1]. Furthermore, it can also be associated with reproductive hormones, early menarche, hormonal contraception, infertility, and childbirth after age 30. Some risk factors that contribute to breast cancer in young women include unhealthy lifestyles such as alcohol use, eating foods low in vegetables, protein, and high in calories, frequent fast food consumption, as well as a lack of physical activity. Studies have reported changes in healthy lifestyles before and after breast cancer diagnosis. For adolescents, risk prevention includes adopting healthy practices, such as maintaining a nutritious diet rich in vegetables and fruits,

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engaging in regular physical activity, and managing stress by fostering safe and supportive relationship with family, friends, and relatives [2].

Adopting healthy lifestyle modifications can enhance prevention and delay and the development of breast cancer. Lifestyle screening is essential for adolescents, as healthy habits such as diet, exercise, and avoiding harmful substances are especially important. Many nursing students have poor attitudes toward breast cancer and fail to recognize the signs and risks. The students view prevention positively, underscoring the need for risk factor screening. According to studies, nurses generally maintain a healthy lifestyle for prevention and possess adequate knowledge about the disease, but often underutilize available detection services [3].

Studies on health education generally cover breast cancer prevention, including self-examination, therapy, and awareness [4]. There has been previous research on health promotion regarding healthy lifestyles among women under the age of 45 for the prevention of breast cancer using web-based interventions containing health videos focused on healthy lifestyles for breast cancer prevention [5]. In addition to the research topic, several previous studies have also discussed the media used in health education on breast cancer prevention, including educational research using booklets and lectures to increase women's awareness of breast cancer. Health education research using video media in cancer prevention promotion efforts. Video is an effective tool for improving attitudes and behaviors related to breast cancer prevention. Several types have been adopted, including audiovisual [6]—real videos for breast cancer adjuvant therapy education[7]. Comparative studies on educational media often focus on comparing leaflet media with videos or image media with videos. Literacy-focused education on breast cancer uses short videos, such as comparing four videos on different literacy topics, all of the same type.

However, research on healthy lifestyle education for breast cancer prevention using different types of videos has not yet been found. Previous studies comparing two videos, namely simulation videos and real laboratory videos, but for other research topics, show that both simulation videos and real videos can improve students' understanding. In addition to simulation videos, Videoscribe can be used as a learning process medium to facilitate understanding of material concepts. This study aims to determine the differences in the effects of educational media, such as Videoscribe and simulation videos, on promoting healthy lifestyle behavior in breast cancer prevention.

## **2 Methods**

### **2.1 Research design**

The method used was a true experimental design with a randomized pretest-posttest control group setup. It aimed to compare the effects of Videoscribe and simulation videos media education on promoting healthy lifestyle behavior, thereby reducing the risk of breast cancer. The present study was conducted from May to August 2025, and the variable analyzed was healthy lifestyle behavior. The operational definition includes healthy lifestyle behaviors for breast cancer risk prevention, which is a process known to female students at Aisyiyah University Yogyakarta after receiving media education in the form of animated graphics videoscribe in the intervention group and simulation videos in the form of a simulation showing a real-life depiction of the application of a healthy lifestyle in the control group, lasting a maximum of 10 minutes, covering nutritional diet, physical activity and smoking, alcohol consumption, dietary fat intake, and stress in an effort to prevent breast cancer.

## **2.2 Study population**

Furthermore, the study population consisted of 250 nursing students at Universitas Aisyiyah Yogyakarta, with a sample size of 50 in each group, and was selected using proportional random sampling. The inclusion criteria for the instrument test were 1) registered nursing students at Universitas Aisyiyah Yogyakarta, Class of 2023/2024, 2) resided in Yogyakarta for a minimum of one year, 3) no history of cancer or family history of cancer and reproductive malignancies, 4) reproductive age, 5) not subjected to therapy or using reproductive hormone contraception (estrogen and progesterone), 6) no pregnancy 7) not married and not breastfeeding, 8) agreed to participate as respondents, and 9) not currently subjected to cancer treatment.

## **2.3 Data collection**

The study instrument was a questionnaire focused on a healthy lifestyle to reduce breast cancer risk. The questionnaire was adapted by modifying the report on the Construction and Validation of the Lifestyle Questionnaire Related to Cancer, which included 60 items. The instrument had previously been tested for validity and reliability, with a Cronbach's alpha of 0.87 and an ICC value ranging from 0.84 to 0.94. Additionally, the questionnaire also referenced the study of on the Development and Psychometric Testing of the Adolescent Healthy Lifestyle Questionnaire, which comprised 48 items with a Cronbach's alpha reliability score of 0.82. The data collection process was conducted through WhatsApp Groups, with procedures varying across groups.

The educational media included a 5-minute videoscribe (<https://www.youtube.com/watch?v=4llh932ki2w>) and a 7-minute simulation video (<https://www.youtube.com/watch?v=QZxRPmKDuP4>), both uploaded to YouTube. Before the intervention, each group completed an online pretest using a healthy lifestyle behavior questionnaire. After 2 weeks of intervention, the same questionnaire was administered online as a posttest.

## **2.4 Statistical analysis**

In the stages of data analysis, a paired t-test was used to assess differences before and after the intervention in each group, as the data were normally distributed. To compare outcomes between the videoscribe and simulation video groups, the Kruskal-Wallis test was adopted because the data were not homogeneous.

## **2.5 Ethic Statement**

This study was subjected to ethical approval and received an ethical feasibility statement was issued under the number: 4698/KEP-UNISA/VII/2025 on July 18, 2025.

# **3 Results and discussion**

## **3.1 Results**

This study comprised 50 participants in each group who used videoscribe and simulation videos to promote healthy lifestyle behavior for breast cancer risk prevention. The results were divided into several parts, including respondent characteristic data, pretest and posttest

data for each group, and an analysis of the differences in the effectiveness of videoscribe and simulation video media.

### 3.1.1 Participants' characteristics

Participants' characteristics included age, family history of breast tumors or cancer, age at menarche, and sources of information about breast cancer prevention. The results of this study are presented in Table 1.

**Table 1.** Participants' characteristics in videoscribe and simulation video groups

Characteristics	Videoscribe Group		Simulation Video Groups	
	Frequency (%)	Mean (SD)	Frequency (%)	Mean (SD)
<b>Age</b>				
18	5 (10%)	19 (0.756)	4 (8%)	19 (0.789)
19	34 (68%)		32 (64%)	
20	8 (16%)		10 (20%)	
21	2 (4%)		3 (6%)	
22	1 (2%)		1 (2%)	
<b>Family history of breast tumors/cancer</b>				
Yes	0 (0%)		2 (4%)	
No	50 (100%)		48 (96%)	
<b>Age of Menarche</b>				
Early (<12 years)	13 (26%)		9 (18%)	
Normal (12-14 years)	33 (66%)		37 (74%)	
Late (≥15 years)	4 (8%)		4 (8%)	
<b>Breast cancer information sources</b>				
Tiktok	32 (64%)		25 (50%)	
Youtube	5 (1%)		7 (14%)	
IG	14 (28%)		9 (18%)	
Twitter	3 (6%)		2 (4%)	
Books/Magazines	0 (0%)		1 (2%)	
TV	4 (8%)		2 (4%)	
News	4 (8%)		1(2%)	
No/never	14 (285)		18 (36%)	

Table 1 showed that the most common age was 19 years. Based on observation, half of the Videoscribe group had no family history of breast cancer. Most participants had a normal menarche age, at 66% and 74%, while TikTok was the primary source of information for 64% and 50%, followed by Instagram at 28% and 18%.

### 3.1.2 Healthy lifestyle behavior to prevent breast cancer risk

The results of healthy lifestyle behavior in the Videoscribe and simulation video groups are shown in Table 2.

**Table 2.** Healthy lifestyle behavior to prevent breast cancer risk

Behavior	Videoscribe Group		Simulation Video Groups	
	Pretest	Posttest	Pretest	Posttest
Good	38 (76%)	39 (78%)	38 (76%)	36 (72%)
Fair	12 (24%)	11 (22%)	12 (24%)	14 (28%)
Poor	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total	100%	100%	100%	100%

Table 2 shows healthy lifestyle behavior before and after the intervention. In the Videoscribe group, behaviors categorized as good were 76% before and 78% after the intervention, while those categorized as fair remained at 24%. In the simulation video group, good behaviors accounted for 76% before the intervention and 72% after, and fair behaviors increased from 24% to 28%.

### 3.1.3 Differences in healthy lifestyle behavior before and after the intervention

The results of changes in healthy lifestyle behavior before and after the intervention are presented in Table 3.

**Table 3.** Differences in healthy lifestyle behavior before and after the intervention

Behavior	Mean (SD)	Std. Error	t	Sig.
Pretest-Posttest for the Videoscribe Group	-6.08(16.53)	2.34	-2.60	0.012
Pretest-Posttest for the Simulation Video Group	-2.10(20,09)	2.84	-0.739	0.46

Table 3 shows The p-value in the Videoscribe group was 0.01, which is below the 0.05 significance level. This reflected a difference in behavior before and after the intervention. The p-value in the simulation video group was 0.46, suggesting no difference in behavior.

### 3.1.4 The Difference in the effect of videoscribe and simulation video on health lifestyle behavior and breast cancer risk prevention

The results of the differences in the effects of Videoscribe and simulation video on healthy lifestyle behavior and breast cancer risk prevention are presented in Table 4.

**Table 4.** Difference in the Effects of Videoscribe and Simulation Video

Group	Mean Rank	Sig.
Videoscribe	54.85	0.13
Video simulation	46.15	

Table 4 shows a p-value of 0.13 was observed, which is greater than the significance level of 0.05, suggesting no significant difference between Videoscribe and simulation videos.

## 3.2 Discussion

Providing healthy lifestyle interventions influenced behavioral changes, which were used as a means of promoting and preventing disease. Healthy lifestyle interventions in the form of exercise and psychosocial support influenced active participation, stress management, and coping in self-care, thereby improving physical and psychological well-being [8]. Lifestyle changes to prevent breast cancer or recurrence are very important, including not smoking,

eating a healthy diet, exercising, maintaining an ideal body weight, preventing stress, and not consuming alcohol.

The result shows this reflected a difference in behavior before and after the videoscribe intervention. Educational research with learning modules using animation in the form of videoscribe effectively improves a person's knowledge and confidence. VideoScribe is based on graphic animation. Studies on the use of animated videos as an educational medium in other topics have also shown that they are useful for increasing the knowledge, empathy, behavior, and awareness of adolescents and parents in certain cases [9]. In addition, animation-based videos are effective in increasing adolescents' knowledge and behavior regarding healthy nutrition [10]. The simulation video group was suggesting no difference in behavior. Video-based simulation health education significantly improves women's confidence, skills, and awareness about breast health as a preventive measure against breast cancer [11]. Visual e-learning simulation videos in the form of performances using actors effectively improve students' knowledge and feelings when learning about performing arts. However, research on another topic, namely health education using simulation videos about nutrition, was ineffective in improving healthy eating behaviors [12]. Multimedia video-based education can help improve knowledge, attitudes, and skills in breast self-examination for prevention. The use of animated videos to educate adolescents effectively improves knowledge and skills related to BSE (Breast Self-Examination) [10].

Animated videos have shown promising results in enhancing online content absorption. The use of animation in 3D/4D video formats has significant potential for distributing materials to students, but more investigation is needed to assess its effectiveness. Animated videos support audience learning in health contexts as well as provide a better learning experience, as explained in theory by [13].

The result shows suggesting no significant difference between videoscribe and simulation videos. Both the animated scribe and short simulation videos showed no difference in effect. Training research using multimedia videos significantly improves knowledge, attitudes, and practices of breast self-examination as a breast cancer prevention measure. Videoscribe and simulation videos are multimedia videos because they contain images, animations, text, and real footage. Providing intervention through virtual education videos to enhance women's abilities in breast cancer prevention, specifically BSE, presented no difference between groups [14]. There was no difference in the effect of both videos, whether animated scribe or short simulation videos.

In a previous study, the background music in short videos allows viewers to concentrate more effectively [15]. Simulation videos with background music become the basis for concentration. The use of human roles in explaining video content, such as wearing a nurse uniform, effectively increases material absorption [15]. Consequently, videos featuring animated background nurses explaining the material can increase the absorption of the material given. Videos shared or uploaded on the page, which allow viewers to provide comments, offer an opportunity to react and effectively understand the material [15]. In this study, all videos uploaded to YouTube include features such as likes, comments, and views, allowing viewers to express thoughts about the content. The use of videos for health explanations in various investigations has successfully achieved the objectives. The topics discussed, including the use of videos for cancer prevention and control, have shown proven success. Future studies should focus on innovations in platforms and learning methods.

The limitations of this study are, first, the posttest data collection method was only conducted once after two weeks post-intervention. The posttest could have been conducted more than twice to see more accurately the changes in the respondents' healthy lifestyle behaviors. Second, the sample age range was 18 to under 21 years old. For further research, the sample age could be 18 to under 45 years old so that it is more varied. Third, the video education media used in this study has not been tested for content validity. Future studies

could test the content validity of the videos with communication experts to ensure that both videos have a balance of elements and avoid bias. Fourth, previous research references comparing videoscribe media with simulation videos are very limited, so different topic references were used for discussion.

The strengths of this study lie in its true experimental design and random sampling technique, which reduce bias, ensure a representative sample size, and have higher potential for generalization and control over external variables.

## 4 Conclusion

In conclusion, no difference was observed in the effect of Videoscribe and simulation video on healthy lifestyle behavior related to breast cancer risk prevention. A test of differences between groups showed that the use of animated videos affected behavior change, while the simulation video presented no effect. Therefore, innovation is needed in video creation, including the consideration of the importance of nurse characters and background music.

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