

Comparison of knowledge, attitudes, and behaviors regarding breast self-examination among health and non-health students

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Abstract

Breast cancer is the most common cancer in Indonesia, with 65,858 new cases, and 68-73% of patients detect the disease at an advanced stage. However, early detection through Breast Self-Examination (BSE) can be performed independently without tools, ideally 7-10 days after menstruation in women aged ≥ 20 years. Despite its importance, BSE activities in educational contexts are predominantly targeted at health students, leaving non-health students with limited exposure. This research aims to determine the differences in knowledge, attitudes, and behaviors regarding BSE among health and non-health students at Universitas Airlangga. A quantitative analytical method with a comparative observational design and a cross-sectional approach was employed. The study was conducted among health and non-health students from the Universitas Airlangga class of 2022 using purposive sampling. Data were analyzed using the Chi-square test. The research results reveal significant differences between the groups. The knowledge p-value was 0.003, the attitude p-value was 0.001, and the behavior p-value was 0.000, indicating higher levels of knowledge, positive attitudes, and practices among health students compared to non-health students. Addressing disparities in BSE awareness and practices between these groups is crucial for promoting early detection of breast cancer. Future research should explore strategies to increase BSE awareness and behavior in non-health students to ensure more comprehensive public health outreach.

Keywords: Breast Self-Examination (BSE); Knowledge; Attitudes; Behavior; Student

1. Introduction

Breast cancer is the most commonly diagnosed cancer in women. Out of 10 diagnosed cancer cases, one of them is breast cancer. It ranks second to cervical cancer, with the highest mortality rate in women worldwide (1). Breast cancer is often characterized by the appearance of abnormal lumps in the breast. The lumps that appear are caused by the spread of breast tissue that grows uncontrol in the breast lobe area. If detected early, it will not be life-threatening, but if it has become cancerous, it can spread to other organs and threaten life (2).

In 2022, there were more than 20 million cases of cancer detected worldwide, 11.6% or as many as 2,308,897 cases of which were breast cancer. The high number of new cases is also in line with deaths from breast cancer, which is 665,684 cases worldwide (3). Whereas in Indonesia, in 2020, there were 68,858 new cases of breast cancer, with a death rate of more than 22 thousand cases. The absence of specific early symptoms causes a high mortality rate due to breast cancer, so this cancer is known as a silent killer because it is often only detected when it has entered an advanced stage or has spread to other organs around the breast (1).

So, it is necessary to have early detection of breast cancer, known as breast self-examination or BSE, which women themselves can do at home. Through BSE, women can check for signs and symptoms of breast cancer using a

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combination of physical and visual examinations (4). BSE is carried out at least once a month in women still menstruating; it should be done after menstruation. In women who have menopause, it should be done routinely on the same date every month. Unfortunately, in their 20s, they tend to be indifferent to their health. Plus, the busyness of college makes them more often consume junk food, which is considered cheaper, easier and more efficient; this can increase the risk of developing breast cancer (5).

Based on their exposure to health information during lectures, students are categorized into two groups: health students and non-health students. Health students receive health-related information through lecture materials that increase their awareness of health issues. This has led to the stereotype that health students possess better knowledge, attitudes, and behaviors related to breast self-examination (BSE) compared to non-health students.

2. Material and methods

The research used quantitative methods with a cross-sectional approach. The purpose is to analyze the differences in knowledge, attitudes, and behaviors regarding Breast Self-Examination (BSE) between health and non-health students. The research was conducted among students from Universitas Airlangga, class of 2022.

The population consisted of health and non-health students, with a total sample size of 304 respondents (152 from each group) selected using a purposive sampling technique. Data collection occurred from August to October 2024 through a structured questionnaire covering respondent characteristics, knowledge, attitudes, and behaviors related to BSE.

Bivariate analysis was conducted using the Chi-square test to examine the differences between the two groups. The significance level was set at 5% ($\alpha = 0.05$). A validity test was conducted on 20 respondents to ensure the reliability of the questionnaire, yielding Cronbach's Alpha values of 0.834 for the knowledge section, 0.948 for the attitude section, and 0.921 for the behavior section, indicating high reliability.

3. Results and discussion

The study was conducted in August-October 2024 at Universitas Airlangga and was attended by 304 respondents, with each group containing 152 respondents.

Table 1 Distribution of Respondents by Faculty of Origin

Origin Faculty	Frequency (n)	Percentage (%)
Health Students		
Faculty of Medicine	51	33.3
Faculty of Dentistry	3	2
Faculty of Pharmacy	2	1.3
Faculty of Veterinary Medicine	25	16.3
Faculty of Public Health	46	30.1
Faculty of Psychology	1	0.7
Faculty of Nursing	25	16.3
Total	152	100%
Non-Health Students		
Faculty of Law	14	9.3
Faculty of Business Economic	27	17.9
Faculty of Social and Political Science	48	31.8
Faculty of Science and Technology	16	10.9
Faculty of Humanities	21	13.9

Faculty of Fisheries and Marine Affairs	13	8.9
Faculty of Advanced and Multidisciplinary Technology	12	7.9
Total	152	100%

In the health student group, the largest percentage of respondents came from the Faculty of Medicine (33.3%), while the non-health student group came from the Faculty of Social and Political Sciences (31.8%).

Table 2 Characteristics of Respondents Related to Breast Self-Examination

Respondent Characteristics	Health Students		Non- Health Students	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Obtaining BSE Information				
Ever	136	89.5	98	64.5
Never	16	10.5	54	35.5
Total	152	100%	152	100%
Origin of Obtaining BSE Information				
Course material	88	25	3	1
Advertising in Public Places	28	8	25	10
Television/Radio	18	5	14	6
Friend/Family	52	15	30	13
Internet/ Media Social	106	30	84	35
Health workers	45	13	33	14
Never Received Information Before	16	4	50	21
Total	*353	100%	*239	100%
BSE Examination				
Ever	107	70.4	70	46.1
Never	45	29.6	82	59.3
Never	152	100%	152	100%
Reasons for not doing the BSE Examination				
Have you ever done the BSE Examination	107	54.3	70	31.5
Confident don't have any breast abnormalities	22	11.5	26	11.8
Feeling weird/ embarrassed observing my own breast	16	8.1	26	11.8
Don't know the Method	21	10.4	51	22.9
Afraid of having breast cancer	8	4	11	5
No one in the family has breast cancer	23	11.7	38	17.1
Total	*197	100%	*222	100%

Mark (*) indicates respondents can choose more than one answer

From the study results, 89.5% of respondents from the health group had received information about breast self-examination before, while in the non-health group, there were only 64.5%. Obtaining information comes from different places, with the largest percentage of the 30% health student group and 35% of non-health students coming from the internet / social media.

Table 3 Differences in Knowledge of Breast Self-Examination

Students Group	Level of Knowledge						Total	P value
	Good		Enough		Less			
	n	%	n	%	n	%		
Health	57	38	92	60	3	2	152	0.003
Non-Health	33	21	109	72	10	7	152	
Total	90	59	201	132	13	9	304	

Chi-square analysis test results regarding Breast Self-Examination knowledge obtained a p-value of 0.003 <0.05, showing differences in Breast Self-Examination knowledge between non-health students at Universitas Airlangga. This is based on health students who have obtained information about Breast Self-Examination through college materials and seminars; this study also shows that as many as 25% of health students have received lecture material on awareness (5). according to research conducted by (6) (7), health students will be more likely to know about BSE than students from other faculties because they tend to have better knowledge because they have been provided with the material in their lectures. While non-health students will only get information if they look for it themselves, the absence of activities regarding Breast Self-Examination in non-health students reinforces the difference between the two groups.

Table 4 Differences in Attitudes Toward Breast Self-Examination

Students Group	Attitude Levels				Total	P value
	Positive		Negative			
	N	%	N	%		
Health	150	98.5	2	1.5	152	0.001
Non-Health	137	90	15	10	152	
Total	287	188.5	17	11.5	304	

Chi-square analysis test results regarding differences in Breast Self-Examination attitudes were obtained with a p-value of 0.001 <0.05, which showed that there were differences in Breast Self-Examination attitudes between non-health students at Universitas Airlangga. The differences that arise regarding Breast Self-Examination attitudes in health and non-health group students can be based on several factors, such as personal experience, culture, other people who are considered necessary, mass media, educational institutions or organizations and religion, emotional factors within themselves (8). Non-health students have a tendency to have a more negative attitude because more than 25% of them have no bad experience with breast cancer, and no friends/family experience it. This makes them feel safe and assume they are not at risk. They also do not learn about the disease, treatment process and prevention in the lecture process, so they tend to be indifferent to the BSE examination.

Table 5 Differences in Behaviors Related to Breast Self-Examination Discussion

Students Group	Behavior Levels						Total	P value
	Good		Enough		Less			
	N	%	N	%	N	%		
Health	76	50	60	39	16	11	152	0.000
Non-Health	36	24	76	50	40	26	152	
Total	112	63	136	84	56	29	304	

Chi-square analysis test results regarding differences in behaviour with a p-value of 0.000 <0.05 showed that there were differences in Breast Self-Examination behaviour between non-health students at Universitas Airlangga. Differences in Breast Self-Examination behaviour in health and non-health students, according to Lawrence Grace's Theory (1990),

are based on several factors, namely predisposing factors (knowledge, attitudes, beliefs, economics, culture and support), supporting factors (environment and health information) and driven by applicable regulations. This shows that the information about Breast Self-Examination obtained by the group of health students through lectures is efficacious in improving their Breast Self-Examination behaviour because they already have a basis in health science.

4. Conclusion

This study concludes significant differences in knowledge, attitudes, and behaviours regarding Breast Self-Examination (BSE) between health and non-health students at Universitas Airlangga. Health students exhibit higher levels of knowledge, more positive attitudes, and better practices due to their exposure to structured health education and supportive academic environments. In contrast, non-health students demonstrate lower engagement, highlighting the need for targeted health promotion strategies

Compliance with ethical standards

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Disclosure of conflict of interest

There was no conflict of interest.

Statement of ethical approval

The Research and Ethics Committee of the Faculty of Medicine, Universitas Airlangga, Indonesia, approved this study with letter number 63/EC/KEPK/FKUA/2024, valid from July 26, 2024, to July 26, 2025.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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