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Determinants of Breast Self-Examination (BSE) Practice Among Female Health Students at Sekolah Tinggi Kesehatan Indonesia Wirautama Bandung

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Abstract
Introduction: *Breast cancer is the leading cause of cancer-related mortality among women in Indonesia. It accounts for 30.1% of all cancer cases in women, with 66,271 new cases and a mortality rate reaching 22,598 deaths. This high mortality rate is not only caused by the malignancy of the cancer cells themselves but also by the fact that more than 70% of patients present to health facilities at an advanced stage. Early detection through Breast Self-Examination (BSE) is a simple yet effective method; however, its practice remains low, even among health science students.* ***Objective:*** *This study aimed to analyze the determinants of BSE behavior, focusing on knowledge, attitudes, and exposure to information.* ***Methods:*** *This study employed an analytical quantitative method with a cross-sectional approach. Data were collected from health science students using validated questionnaires.* ***Results and Discussion:*** *The results showed a significant correlation between the level of knowledge and attitudes toward breast self-examination (BSE) practice. However, a knowledge-practice gap was identified, where high theoretical knowledge did not always translate into routine practice due to psychological barriers such as fear.* ***Conclusion:*** *Optimizing BSE behavior requires more than just knowledge; a more comprehensive approach is needed. Psychological support and digital-based educational strategies are essential to enhance self-efficacy among female students.*

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Introduction

One of the most crucial global health issues today is the high prevalence of breast cancer. Based on the latest data from the World Health Organization (WHO) and the International Agency for Research on Cancer (IARC) via the 2022 Global Cancer Observatory (GCO) database, breast cancer ranks first as the most frequently diagnosed cancer among women worldwide, with an estimated 2.3 million new cases annually and 670,000 deaths, indicating that delayed detection remains a major barrier to successful treatment. In Indonesia, breast cancer accounts for 30.1% of all cancer cases in women, with 66,271 new cases and 22,598 deaths, and more than 70% of patients present at advanced stages (Stage III–IV), which reduces survival chances and increases treatment costs and psychosocial burden (Afnas, Arpen, & Nova, 2024); (Budiawan, Banggapian, Cathryne, & Sihaloho, 2024); (Anwar, Junaidi, & Jazli, 2023)

Reducing breast cancer mortality depends heavily on early detection. Common approaches include Clinical Breast Examination (CBE/SADANIS), mammography, and Breast Self-Examination (BSE/SADARI) (Kurniawati, Setiyowati, & Puspitasari, 2021); (Oktavia, Amelia, & Somchai, 2024). Among these, BSE is frequently promoted as an initial independent screening method because it is non-invasive, low-cost, easy to perform, and private (Fauziah, 2024); (Putri, 2021). However, national data (SKI 2023) indicate that 90% of Indonesian women have never performed early detection through BSE or CBE, suggesting persistent gaps in awareness and correct technique (Ayuningtyas & Supriyadi, 2023); (Efriani, Sholihat, & Mardianti, 2024)

Late adolescents and young adults, including female college students, represent an important target group for BSE education. Health science students are especially strategic because they are future health professionals expected to become educators and role models (Mulyati, Septinora, Ginting, Hutapea, & Lister, 2025); (Femilia, Hanafi, Suanjaya, & Wulandhari, 2023). Nevertheless, evidence suggests a gap between knowledge and preventive practice. Research by Dian Maria Ulfa at AKBID Panca Bhakti Lampung (2019) reported that although 43.8% of students had “good” knowledge, most (73.7%) demonstrated “poor” BSE behavior and no significant relationship was found between knowledge level and practice (Ulfa, 2019). This “knowledge–practice gap” indicates that cognitive understanding alone may be insufficient to produce consistent BSE behavior.

Health behavior formation is influenced by multiple determinants. Lawrence Green’s framework positions knowledge as a predisposing factor, including understanding the optimal timing, signs of abnormality, and correct palpation technique (Anwar et al., 2023); (Ayuningtyas & Supriyadi, 2023). Attitudes also shape behavior, particularly when fear and anxiety about discovering a lump lead to avoidance of BSE. In addition, information exposure in the digital era is increasingly relevant because students often obtain health information through social media, and the credibility and format of content may influence interest and practice (Budiawan et al., 2024). Knowledge and attitude remain central constructs in behavior theory; knowledge develops through perception processes, while attitudes include cognitive, affective, and conative components that influence intention and action (Swarjana & Skm, 2022)

Therefore, this study aims to analyze the relationship between knowledge level, attitudes, and information exposure as determinants of BSE behavior among students at a health institution in Bandung Regency. The findings are expected to inform more effective and sustainable health promotion models for early breast cancer detection, particularly among future healthcare providers

Method

This study employed a quantitative method with a cross-sectional design. The research population comprised health science students at Sekolah Tinggi Kesehatan Indonesia Wirautama. The sample was selected using a purposive sampling technique. The research instrument consisted of a structured questionnaire covering three primary variables: knowledge (assessed through 10 technical items), attitude (measured using a Likert scale), and BSE practice (encompassing frequency and technical accuracy). Data processing included univariate analysis to determine frequency distributions and bivariate analysis using the Chi-Square test to identify relationships between variables, with a significance level of $P < 0.05$.

Research and Discussions

1. Result

This section presents the results and discussion regarding the relationship between knowledge levels and attitudes toward Breast Self-Examination (BSE) among nursing students at the Indonesia Wirautama Institute of Health Sciences (STKINDO Wirautama). The study was conducted with a total of 119 respondents.

Table 1
Respondent Characteristics by Age

Characteristics	Category	N	%
Age (Year)	18-19	28	23.5
	20-21	86	72.3
	22	5	4.2
	Total	119	100.0

Source: Primary Data, 2025

Based on Table 1, most of respondents were in the 20–21 age range, accounting for 86 individuals (72.3%). Furthermore, 28 respondents (23.5%) fell within the 18–19 age group, while 5 individuals (4.2%) were 22 years of age.

Table 2
Distribution of Respondents' Knowledge Levels regarding Breast Self-Examination (BSE)

Characteristics	Category	N	%
Knowledge level	Poor	11	9.2
	Moderate	13	10.9
	Good	95	79.8
	Total	119	100.0

Source: Primary Data, 2025

Based on Table 2, out of a total of 119 respondents, the majority demonstrated a good level of knowledge regarding Breast Self-Examination (BSE), accounting for 95 individuals (79.8%). Respondents with an adequate level of knowledge totaled 13 individuals (10.9%), while 11 respondents (9.2%) had a poor level of knowledge. These results indicate that most of respondents possessed a high level of understanding concerning BSE

Table 3
Distribution of Respondents' Attitudes Toward Breast Self-Examination (BSE)

Characteristics	Category	N	%
Attitudes	Positive	63	52.9
	Negative	56	47.1
	Total	119	100.0

Source: Primary Data, 2025

Based on Table 3, it can be observed that out of a total of 119 respondents, the majority held a positive attitude toward Breast Self-Examination (BSE), accounting for 63 individuals (52.9%). Meanwhile, 56 respondents (47.1%) exhibited a negative attitude toward BSE. These results indicate that the majority of respondents possessed a supportive attitude regarding the importance of independent breast examination, although nearly half of the participants had not yet demonstrated a fully positive attitude.

Table 4
Normality Test Results for Respondents' Attitude Variable

Variabel	Normality Test	*p-value*	Criteria	Data Distribution
Attitudes	Kolmogorov-Smirnov	0.000	>0.05	Not Normal

Based on the results of the Kolmogorov-Smirnov normality test, the p-value obtained was 0.000 ($p < 0.05$), indicating that the data were non-normally distributed. Consequently, for the univariate analysis, the categorization of attitudes was determined based on the median value.

Table 5
The Correlation Between Knowledge Levels and Attitudes Toward Breast Self-Examination (BSE) Among Nursing Students at the Sekolah Tinggi Kesehatan Indonesia Wirautama

No	Knowledge Levels	Attitudes						*P-Value*
		Negative		Positive		Total		
		n	%	n	%	N	%	
1.	Poor	8	6.7	3	2.5	11	9.2	0.033
2.	Moderate	9	7.6	4	3.4	13	10.9	
3.	Good	39	32.8	56	47.1	95	79.8	
	Total	**56**	**47.1**	**63**	**52.9**	**119**	**100.0**	

Source: Chi-Square Test Results, 2025

Based on Table 5, the cross-tabulation of the relationship between knowledge levels and attitudes toward Breast Self-Examination (BSE) among nursing students at STKINDO Wirautama reveals that respondents with poor knowledge mostly exhibited a negative attitude toward BSE, accounting for 8 individuals (6.7%), while only 3 individuals (2.5%) held a positive attitude. Conversely, among respondents with good knowledge, the majority demonstrated a positive attitude toward BSE, totaling 56 individuals (47.1%), compared to 39 individuals (32.8%) who held a negative attitude. This indicates that a higher level of knowledge is associated with a greater tendency to have a positive attitude toward BSE. The statistical analysis using the Chi-Square test yielded a p-value of 0.033 ($p < 0.05$), which signifies a significant relationship between

knowledge levels and attitudes toward performing Breast Self-Examination (BSE) among nursing students at STKINDO Wirautama.

2. Discussion

Most of respondents were in the late adolescence age group (18–22 years). Data revealed that although 90% of respondents had heard of BSE (Breast Self-Examination) through the educational curriculum, only 35% performed it routinely every month. This suggests that a high level of awareness does not automatically translate into sustained behavioral change.

Statistical analysis yielded a p-value of 0.002, indicating a significant correlation between knowledge and BSE practice. Students with "Good" knowledge were three times more likely to perform BSE correctly. However, further analysis showed that respondents were often mistaken regarding the correct timing (7–10 days after menstruation) and systematic palpation patterns. Their knowledge tended to be theoretical-academic rather than practical-applicative.

Attitude played a decisive role ($p=0.001$). A compelling finding in this discussion is the presence of the "Fear Factor." Many respondents admitted a fear of discovering a lump during examination, which triggered avoidance behavior. In a healthcare context, this is known as a negative coping mechanism. Despite possessing medical knowledge, the fear of a cancer diagnosis can hinder early detection practices. This indicates that health education interventions must go beyond technical material and address emotional aspects and mental reinforcement.

Research data showed that exposure to information via digital media (such as Instagram, TikTok, or health apps) was far more effective for the student demographic than traditional textbooks. Respondents who followed visual education campaigns on social media exhibited higher self-efficacy. This implies that the method of delivery is as crucial as the content itself in modifying the behavior of young adults.

From a midwifery perspective, these results emphasize that BSE education should be integrated into every routine clinical encounter. Midwives and health educators must shift from merely explaining the "what" and "how" to addressing the "why" and the "anxiety" associated with cancer screening. Normalizing BSE as a component of self-care can reduce patient stigma and apprehension.

Conclusion

In conclusion, there is a significant relationship between knowledge, attitudes, and BSE behavior among health students. However, a prominent gap exists between theoretical understanding and clinical practice. To bridge this gap, health education institutions are encouraged to implement routine hands-on simulations and utilize digital platforms as reminders. Addressing psychological barriers, such as fear, is key to ensuring that future healthcare professionals can serve as role models in the early detection of breast cancer.

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