Volume 1 Issue 1, June 2025
International Journal of Adolescent and Pediatric Health

Article

Factors Associated with Breast Self-Examination Practices Among Adolescent Girls in Rural Indonesia

Agus Hendra[1], Siti Rohmawati[2], Agni Laili Perdani[1,*]

[1]Department of Pediatric Nursing, Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat
[2]Bachelor of Nursing Study Program, Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat

Email : abialifa1974@gmail.com

Academic Editor: Taryudi

Received: June 13, 2025
Revised: June 26, 2025
Accepted: June 30, 2025
Published: June 30, 2025

Website
https://journal.img.co.id/index.php/ijaph

Abstract

Background: Breast cancer is the most prevalent cancer among women in Indonesia and has remained a leading cause of mortality over recent decades. Despite its potential to aid in early detection, breast self-examination (BSE) is practiced by only a small proportion of women. BSE is a simple, cost-effective method for identifying breast abnormalities, yet its adoption remains low, particularly among adolescents.
Objective: This study aimed to examine the association between knowledge, attitudes, family support, and information exposure with breast self-examination behavior among adolescent girls attending senior high school in a rural area of Indonesia.
Methods: A cross-sectional study was conducted among 129 female students from all grade levels at a senior high school in a rural district. Participants were selected using a convenience sampling technique. Data were collected using a modified version of the BSE questionnaire by Nde et al. (2015), which demonstrated strong validity (CVI = 0.88) and reliability (Cronbach's α = 0.98). Descriptive, bivariate, and multivariate analyses were conducted using SPSS Version 26.
Results: Statistical analysis revealed a significant association between family support and BSE practice. Other factors such as knowledge, attitude, and information exposure were also examined but did not demonstrate statistically significant relationships in multivariate analysis.
Conclusion: The findings highlight the critical role of family, particularly in rural communities, in encouraging breast health awareness and preventive behaviors such as BSE among adolescent girls. Strengthening family involvement may enhance early detection practices and reduce breast cancer morbidity in the long term.

Keywords: adolescents, breast self-examination, breast cancer prevention, family support, rural health

INTRODUCTION

Breast cancer remains the most prevalent malignancy among women globally and is a leading cause of cancer-related mortality. In Indonesia, it accounts for 16.6% of all cancer cases, with 68,858 newly reported cases in 2020, marking a significant increase from 58,256 cases in 2018 (Kemenkes RI, 2021). Alarmingly, the mortality rate reached 17 deaths per 100,000 women, making breast cancer a primary contributor to the national cancer burden (Globocan, 2020). While breast cancer has historically been associated with older women, recent evidence shows a concerning trend of increasing incidence among adolescents and young women (Riskesdas, 2018; Kemenkes RI, 2020). Hormonal changes during puberty and adolescence are believed to contribute to heightened vulnerability, especially when compounded by modifiable risk factors such as lack of physical activity, poor diet, and limited awareness of breast health (Marfianti, 2021; Anggraeni & Handayani, 2019).

Breast Self-Examination (BSE) is a simple, cost-effective, and non-invasive method of detecting abnormalities at an early stage. It remains one of the most accessible forms of early detection, especially in low-resource rural settings where access to clinical breast screening or mammography is limited. Studies have shown that approximately 85% of breast abnormalities are first detected by individuals themselves through BSE when taught properly (Utami & Mustikasari, 2017; Anggraeni & Handayani, 2019). Despite this, the practice of BSE among adolescent girls remains low. For example, Khairatunnisa and Purba (2022) reported that only 26% of adolescent girls practiced BSE, with knowledge, attitude, family support, and information exposure identified as key influencing factors. Similarly, Anggraeni and Handayani (2019) observed that peer support and family encouragement play a pivotal role in forming positive BSE behaviors, particularly among school-age girls in underserved regions.

Adolescents, defined by WHO as individuals aged 10–19 years, are in a critical developmental stage marked by curiosity, experimentation, and the formation of lifelong health behaviors. This period presents a strategic opportunity to instill preventive health habits such as BSE. Given that breast cancer can occur at a younger age and that adolescence marks the onset of hormonal and anatomical breast development, early education on breast health is essential for long-term cancer prevention (WHO, 2019).

From a theoretical perspective, the Health Belief Model (HBM) provides a valuable framework for understanding health behavior change in adolescents. The model posits that individuals are more likely to engage in preventive behaviors if they perceive themselves to be susceptible, believe the condition has serious consequences, and see clear benefits in taking action, particularly when supported by cues to action such as information exposure and social support (Rosenstock, 1974; Champion & Skinner, 2008). Similarly, the Theory of Planned Behavior (TPB) emphasizes the role of attitudes, subjective norms (e.g., family expectations), and perceived behavioral control in determining health practices like BSE (Ajzen, 1991).

Despite the increasing incidence of breast cancer and the relevance of BSE for early detection, there remains a paucity of studies focusing on adolescents, especially those in rural Indonesian contexts. Most prior research has targeted adult women, and few have explored how socio-cognitive factors interact with adolescent behaviors related to BSE in under-resourced communities. This study addresses this gap by examining the associations between knowledge, attitudes, family support, and information exposure with BSE practices among adolescent girls attending high school in rural Indonesia.

METHODE

Study design

This study adopted a cross-sectional research design and utilized a convenience sampling method. The study was conducted in June 2022 at a senior high school located in a rural area.

Sample

The target population consisted of adolescents aged 16 to 18 years who owned and were capable of using a smartphone. Convenience sampling was chosen due to ease of access and the willingness of eligible students to participate during the specified data collection period. The minimum required sample size was calculated using the Slovin formula with a margin of error of 5%, assuming a population of approximately 200 students in the selected school. Based on this calculation, a minimum of 133 participants was required to achieve sufficient statistical power. To accommodate potential non-response, the final sample size was increased, and data were collected from 150 respondents who met the inclusion criteria.

Measurement

Operationally, knowledge of BSE was defined as the respondent's ability to understand the correct timing, frequency, and technique of breast self-examination. Attitude was defined as the respondent's perception of the benefits and importance of BSE. Practice was defined as the self-reported frequency and regularity of performing BSE.

The BSE questionnaire assessed three main constructs: knowledge, attitudes, and practices. The knowledge dimension consisted of seven items with Yes or No responses scored on a Guttman scale, where "Yes" was coded as 2 and "No" as 1. The attitude dimension included five items rated on a four-point Likert scale ranging from 1 (Disagree) to 4 (Strongly Agree). The practice dimension comprised three items, also using a Guttman scale with Yes and No responses. The total possible score ranged from 12 to 34, with higher scores indicating greater knowledge, more favorable attitudes, and better BSE practice. The instrument had previously been validated and

adapted by Nde et al. (2015), demonstrating excellent psychometric properties with a validity coefficient of 0.88 and a Cronbach's alpha of 0.98. These measures indicate high reliability and internal consistency of the instrument for use in adolescent populations.

Data collection

Data were collected using a self-administered questionnaire that had been modified from the original Breast Self-Examination (BSE) instrument developed by Nde et al. (2015). The questionnaire was distributed in printed form during class sessions after obtaining informed consent. A brief explanation of the study's objectives and instructions for completing the questionnaire was provided to all participants. Respondents completed the questionnaire independently, and research assistants were available to provide clarification if needed. Completed questionnaires were collected immediately to ensure data integrity and reduce the risk of missing responses.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics were used to summarize participants' demographic characteristics and the distribution of knowledge, attitude, and practice scores. Mean and standard deviation were calculated for continuous variables, while frequency and percentage were used for categorical data. Bivariate analysis using chi-square tests and independent t-tests was conducted to examine associations between demographic factors and BSE variables. A significance level of $p < 0.05$ was set for all statistical tests.

Ethical Consideration

Ethical approval for the study was obtained from the Research Ethics Committee of STIKep PPNI Jawa Barat. rior to data collection, all participants and where applicable, their parents or guardians were provided with a clear explanation of the study's aims, procedures, potential risks, and benefits. Written informed consent was obtained from each participant, with parental consent required for participants under the age of 18 in accordance with ethical research guidelines involving minors. Participation in the study was entirely voluntary. Participants were informed of their right to decline or withdraw from the study at any time without any penalty or loss of benefits. Confidentiality was strictly maintained through anonymized data coding, and no identifying personal information was collected or disclosed. All data were securely stored and used solely for academic research purposes, ensuring full compliance with the ethical principles outlined in the Declaration of Helsinki and national research ethics standards..

RESULTS

A total of 129 adolescent girls participated in this study, all of whom were enrolled in a senior high school in a rural area of Indonesia. The mean age of participants was 16.93 years (SD = 0.81), with the largest proportion being in Grade X (n = 47, 36.4%) (Table 1). All respondents were female.

Table 1. Demographic Characteristics of Participants (n = 129)

Variables	Mean ± SD	Frequency (f)	Percentage (%)
Age (years)	16.93 ± 0.81		
16		47	36.4
17		43	33.3
18		39	30.2
Grade			
X		47	36.4
XI		43	33.3
XII		39	30.2
Knowledge	13.53 ± 0.74		
Attitude	14.85 ± 1.54		
Practice	5.64 ± 0.62		
Self-Efficacy	44.30 ± 7.36		
Family Support	13.91 ± 1.38		

Table 2 presents the results of the Spearman correlation test examining the relationship between the practice of breast self-examination (BSE) and independent variables. The findings reveal a significant positive correlation between knowledge (r = 0.81, p = 0.02) and family support (r = 0.18, p = 0.03) with BSE practice. No statistically significant associations were observed for age, grade level, attitude, or self-efficacy.

Table 2. Correlation Between BSE Practice and Independent Variables (Spearman's rho)

Variables	*r*	*p*-value
Age	0.03	0.71
Grade	0.03	0.71
Knowledge	0.81	0.02*
Attitude	0.02	0.76
Self-Efficacy	0.08	0.36
Family Support	0.18	0.03*

Note: *Significant at $p < 0.05$

Linear regression analysis was performed to identify the most influential factors associated with BSE practice among adolescents. As shown in Table 3, family support was found to be a significant predictor of BSE practice (β = 0.08, p = 0.04), indicating that higher perceived support from family was associated with greater likelihood of practicing breast self-examination. Other variables, including knowledge, attitude, and age, did not demonstrate significant predictive value in the model.

Table 3. Predictors of BSE Practice Among Adolescent Girls

Variables	B	SE	Beta	*t*	*p*-value
Age	0.01	1.63	0.01	0.07	0.93
Knowledge	0.02	0.07	0.02	0.29	0.77
Attitude	0.01	0.03	0.01	0.15	0.87
Family Support	0.08	0.04	0.18	2.01	0.04

Note: *Significant at $p < 0.05$

DISCUSSION

The present study identified family support as a significant factor associated with breast self-examination (BSE) practice among adolescent girls in a rural area of Indonesia. This finding aligns with prior research by Maulidia et al. (n.d.) and SADARI & UNHAS (2020), which reported a strong positive correlation between family support and BSE behavior. Similarly, Sari et al. (2022) highlighted that adolescents who received emotional and informational support from their families, particularly from mothers were more likely to engage in BSE regularly. Family members play a vital role as motivators and enablers of preventive health behaviors, especially in conservative or close-knit communities where parental attitudes heavily influence adolescent decision-making (Nisa et al., 2021; Rahmadini et al., 2022).

Qualitative responses from this study also revealed that some participants lacked family support due to the limited availability or emotional involvement of their parents. This is particularly problematic, as family communication and emotional reinforcement can shape adolescents' health-seeking behaviors, including early detection practices like BSE. As Nde et al. (2015) suggest, open dialogue within the family can facilitate greater awareness and behavioral adoption of BSE among young females.

Interestingly, knowledge and attitude were not found to be significant predictors of BSE behavior in the multivariate analysis of this study, despite being positively correlated in the bivariate analysis. These findings contrast with previous studies by Anggraeni and Handayani (2019), Khairatunnisa and Purba (2022), and Lubis (2017), which found knowledge to be significantly associated with BSE practice. Tae and Melina (2020) emphasized that knowledge enhances one's ability to detect abnormalities in breast size, texture, or skin changes, making regular monthly BSE an essential practice for early detection and improved prognosis.

Furthermore, while attitude was not a significant predictor in our regression model, this contradicts findings from Sari et al. (2022) and Study et al. (2018), who demonstrated that a positive attitude toward BSE significantly increases the likelihood of regular practice. One possible explanation is that adolescent respondents in this study still perceive themselves as low-risk and feel they are too young to be concerned with breast cancer. These cognitive biases, combined with limited health prioritization during adolescence, may diminish the influence of knowledge or attitude in practice. This discrepancy underscores the need for culturally and developmentally appropriate health education that addresses perceived susceptibility, self-efficacy, and normative beliefs, as described in the Health Belief Model (HBM) and Theory of Planned Behavior (TPB). Both theories support the importance of addressing individual beliefs, behavioral intentions, and social reinforcement (Glanz et al., 2015).

CONCLUSION

This study demonstrates that family support is a key factor influencing breast self-examination behavior among adolescent girls in rural Indonesia. During the developmental transition from childhood to adulthood, adequate support from close family members, especially mothers plays a vital role in shaping breast health awareness. Although knowledge and attitude were not significant predictors in this analysis, they remain important targets for future interventions. In this era of digital technology, adolescents increasingly access health information via social media and online platforms. However, effective health education efforts must go beyond digital access; they should integrate family-based communication, culturally sensitive messages, and empowerment strategies to encourage consistent and correct BSE practice from an early age. Future studies are encouraged to adopt longitudinal and mixed-method approaches to evaluate the sustainability of behavior change and the mediating effects of family and peer influence.

Conflict of Interest

The authors declare no conflict of interest related to the conduct, authorship, or publication of this study.

Acknowledgement

The authors extend their sincere gratitude to the family caregivers who participated in this study and shared their experiences openly. Appreciation is also given to the pediatric nursing staff and administrative personnel at the participating hospital in West Java for their cooperation and assistance throughout the research process.

Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available to protect participant confidentiality. However, data may be made available by the corresponding author upon reasonable request and with appropriate ethical clearance.

Funding

This research did not receive any external funding from governmental, commercial, or not-for-profit organizations. The study was independently designed and conducted by the authors.

REFERENCES

Anggraeni, S., & Handayani, E. (2019). Faktor-faktor yang mempengaruhi perilaku pemeriksaan payudara sendiri (SADARI) pada mahasiswi non kesehatan UIN antasari banjarmasin. *Jurnal Kesehatan Indonesia*, *9*(2), 76–83.

Kemenkes RI. (2019). *Profil Kesehatan Indonesia 2018 Kemenkes RI. (2019).*

Khairatunnisa, K., & Purba, R. S. (2022). Faktor-Faktor Yang Berhubungan Dengan Perilaku Wanita Usia Subur Dalam Melakukan Pemeriksaan Payudara Sendiri (Sadari) Di Desa Cinta Dame Kecamatan Simanindo Kabupaten Samosir. *Akrab Juara: Jurnal Ilmu-Ilmu Sosial*, *7*(1), 338–349.

Kusumawaty, J., Noviati, E., Sukmawati, I., Srinayanti, Y., & Rahayu, Y. (2021). Efektivitas Edukasi SADARI (Pemeriksaan Payudara Sendiri) Untuk Deteksi Dini Kanker Payudara. *ABDIMAS: Jurnal Pengabdian Masyarakat*, *4*(1), 496–501.

Lubis, U. L. (2017). Pengetahuan remaja putri tentang pemeriksaan payudara sendiri (SADARI) dengan perilaku sadari. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, *2*(1), 81–86.

Marfianti, E. (2021). Peningkatan Pengetahuan Kanker Payudara dan Ketrampilan Periksa Payudara Sendiri (SADARI) untuk Deteksi Dini Kanker Payudara di Semutan Jatimulyo Dlingo. *Jurnal Abdimas Madani Dan Lestari (JAMALI)*, 25–31.

Maulidia, H. R., Prabamurti, P. N., & Indraswari, R. (n.d.). Faktor-faktor yang Berhubungan dengan Praktik Pemeriksaan Payudara Sendiri (SADARI) dalam Upaya Deteksi Dini Kanker Payudara pada Santriwati Pondok Pesantren di Kecamatan Mijen Kota Semarang Tahun 2021. *Media Kesehatan Masyarakat Indonesia*, *21*(3), 162–168.

Ministry of Health of Republic of Indonesia. (2020). *Data dan Informasi kesehatan indonesia 2019*.

Nde, F. P., Assob, J. C. N., Kwenti, T. E., Njunda, A. L., & Tainenbe, T. R. G. (2015). Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea. *BMC Research Notes*, *8*, 1–6.

Nisa, K., Khodijah, K., & Irawan, D. (2021). Pengaruh Edukasi Sadari Terhadap Pengetahuan Tentang Sadari Pada Siswi Di Sma Negeri 1 Brebes Tahun 2020. *Bhamada: Jurnal Ilmu Dan Teknologi Kesehatan (E-Journal)*, *12*(2), 57–63.

Rahmadini, A. F., DS, R. K., & Agustiani, T. (2022). Edukasi Perilaku Pemeriksaan Payudara Sendiri (Sadari) Dalam Pencegahan Kanker Payudara Pada Remaja. *Jurnal Pemberdayaan Dan Pendidikan Kesehatan (JPPK)*, *1*(02), 105–113.

Riskesdas. (2018). Riset Kesehatan Dasar 2018. *Kementrian Kesehatan Republik Indonesia*, 1–100. https://doi.org/1 Desember 2013

SADARI, F. Y. B. D. P., & UNHAS, M. F. K. M. (2020). *Hasanuddin Journal of Public Health*.

Sari, I. G., Saputri, M. E., & Lubis, R. (2022). Faktor-Faktor Yang Berhubungan Dengan Perilaku Sadari Pada Remaja Putri Di Smk Pandutama Bogor Tahun 2021. *Jurnal Penelitian Keperawatan Kontemporer*, *2*(1), 98–106.

Tae, M. M., & Melina, F. (2020). Hubungan Tingkat Pengetahuan Tentang Sadari Dengan Kepatuhan Melakukan Sadari Pada Mahasiswa DIII Kebidanan Di Stikes Yogyakarta. *Jurnal Kesehatan Samodra Ilmu*, *11*(2), 154–165.

Utami, S. S., & Mustikasari, M. (2017). Aspek psikososial pada penderita kanker payudara: studi pendahuluan. *Jurnal Keperawatan Indonesia*, *20*(2), 65–74.

WHO. (2019). *Adolescent health and development*.