



Analysis Determinants of Breast Self-Examination Practice in Midwifery Students, Faculty of Nursing and Health Sciences Universitas Muhammadiyah Semarang

Novita Nining Anggraini^{1,*} Siti Nurjanah²

^{1,2} Universitas Muhammadiyah Semarang, Semarang, Central Java 50273 Indonesia
novitanovi@unimus.ac.id

Abstract. Awareness is a way of early detection of tumors or lumps in the breast to reduce the death rate due to breast cancer. Breast cancer data in the World is 13%, in Indonesia 16.85% and in Semarang 39.63%. Breast cancer is known as one of the cancers that most often attack women after cervical cancer. Cancer is a scourge for everyone, besides the tendency to increase its prevalence is inevitable. This fear arises because the death rate from cancer is very high. This happens not only in Indonesia but also in various countries. The purpose of the study was to prove the determinants related to the practice of breast self-examination in female students of the Midwifery Profession, Faculty of Nursing and Health (FIKKES), University of Muhammadiyah Semarang. This research is an analytical research with quantitative methods and uses Cross Sectional research design, the number of samples is 58 respondents selected in total sampling. The output target of this research is international proceedings indexed in reputable databases.

Keywords: Breast Cancer, Female College Student, SADARI.

1. Introduction

Cancer is a disease that is deeply dreaded by the community because it frequently results in death. Cancer incidence is increasing worldwide, both in Western and Asian countries. The World Health Organization (WHO) and the World Bank estimate that 12 million people worldwide suffer from cancer each year, with 7.5 million dying. If not regulated, it is anticipated that by 2030, 26 million people will suffer from cancer, with 17 million dying. Ironically, this catastrophe will happen sooner in poor and emerging countries. In 2020, the World Health Organization (WHO) mentions as many as 458,000 fatalities due to breast cancer.

The incidence of cancer in Indonesia has seen a tremendous spike in the last 10 years, the prevalence of breast cancer in Indonesia is 1.4 per 1000 population, the ranking of cancer as the leading cause of death has increased to rank 7 from rank 12. The incidence of cancer

in Indonesia is estimated at 40 per 100,000 population. Hospital Information System (SIRS) data for 2019-2021 shows that breast cancer cases are the highest type of cancer in Indonesia. Breast cancer is estimated to be 20% of all cancers that affect women, the incidence is about 100 patients out of 100,000 lives per year, and mortality is about 11.22% of all cancer incidence. Based on data from Cancer Registration, Sub Directorate of Cancer 2009, breast cancer (32%) is the highest type of cancer in 31 hospitals in DKI Jakarta.

Breast cancer ranks first based on Hospital Information System (SIRS) data in 2011 on breast cancer patients who become inpatients in all hospitals in Indonesia (16.85%), followed by cervical cancer (11.78%). Based on the International Agency for Research on Cancer (IARC), it is known that in 2020 there were 14,067,894 new cases of cancer and 8,201,575 deaths from cancer worldwide. Based on a literature review conducted by Kanodia et al. (1), it was known that breast cancer, prostate cancer, and lung cancer are the types of cancer with the highest percentage of new cases, at 43.3%, 30.7%, and 23.1%. Meanwhile, lung cancer and breast cancer are the highest causes of death from cancer (1).

The problem of breast cancer is characterized by a high mortality rate caused mainly by late diagnosis, followed by late treatment. The delay in diagnosis is more due to the arrival of patients in the hospital at an advanced stage. Some data shows that more than 50% of patients present in advanced stages (Stage III and IV).

The management of breast cancer malignancy has progressed very rapidly, even so the mortality rate and malignancy rate of breast cancer still remain high, this is because patients are found at an advanced stage, so in this case early detection and diagnosis of malignancy plays a very important role to improve prognosis in addition to other clinical factors.⁵ This is due to low awareness, Public understanding and knowledge about breast cancer, while cross-sectoral breast cancer treatment has not received priority from the government.

The risk of breast cancer will increase with age. The youngest age for the occurrence of breast cancer is above 22 years and the increase in the prevalence of breast cancer occurs in the age group less than 45 years and the incubation period of breast cancer is estimated at 8-12 years. A woman aged between 30-39 years has a risk of 0.43% (1 case out of 233 women) of developing breast cancer, from the age of 40-49 years has a risk of 1.4% (1 case of 69 women), from the age of 50-59 years has a risk of 2.6% (1 case of 38 women) and from the age of 60-69 years has a risk of 3.7% (1 case of 27 women). 5

In efforts to prevent cancer, level I prevention efforts are prioritized by means of Public Health Promotion, namely the Public Awareness Campaign. The Indonesian Cancer Foundation conducted a campaign by suggesting "WASPADA", where the message "P" is related to breast cancer. Breast lumps need to be detected early, especially when they are still small and by women themselves by doing a Breast Self-Check (BSE) (1). BSE needs

to be done when a woman has reached puberty and is experiencing breast development. SADARI plays an important role in the discovery of early-stage breast cancer, because statistically in America and also in Indonesia 95% of breast cancer incidence is found by the sufferers themselves. In fact, 90% of breast cancers are found by women themselves during self-awareness. According to Astana, breast cancer deaths are fewer in women who do BSE than those who do not,¹⁷ Therefore, breast cancer management focuses on the detection of early-stage tumors which are usually small.

BSE is one of the early detection steps to find early-stage breast cancer which will be more effective if done as early as possible, because 85% of abnormalities in the breast are first recognized by patients when mass screening is carried out. BSE should be done every time you finish menstruation, namely the 7th to 10th day of the first day of menstruation, because at this time the hormonal influence of estrogen and progesterone is very low and the breast gland tissue at that time does not swell so it is easier to feel the presence of tumors or abnormalities in the breast (2).

Cancer cases found in Central Java Province in 2021 were 19,637 cases, an increase compared to 2020 of 13,277 cases, and breast cancer ranked highest compared to other cancer cases, consisting of Ca mamae 9,542 cases (48.59%), Ca Ca. Cervical 6,899 cases (35.13%), Ca. Hepar 2,242 (11.42%), and Ca. lung 954 cases (4.86%). Based on the health profile of Semarang City, the distribution of Breast Cancer cases in Semarang in 2010 – 2014 experienced a fairly high increase in the number of cases. In 2010 there were 2349 cases (23.15%), in 2011 there were 4946 cases (48.73%) and in 2012 there was a decrease of 998 cases (9.83%), in 2013 as many as 832 (8.20%) and in 2014 there was an increase of 1024 cases (10.09%). The death rate from breast cancer from 2010 was 41 cases of death and in 2011 as many as 58 cases.

Midwifery Profession, Faculty of Nursing and Health Sciences (FIKKES) University of Muhammadiyah Semarang (UNIMUS) is an educational institution that produces health workers, especially in the field of promotive and preventive health. Midwifery Professional Students are expected to be the next generation who make positive changes in society, so they should do these positive things starting with themselves and become role models for the community where they are health workers where they have also provided services in health midwives, especially midwifery.

This study makes Midwifery Professional students as respondents because female students are students of advanced programs of midwife education who are included in the recommended age group to start routinely doing BSE as a step for early detection of breast cancer.

The results of interviews with respondents as many as 10 female students stated that 7 of them were still low awareness of doing BSE and had not done BSE regularly every month and the method of checking BSE was also still not correct. The steps, this shows that even though female students who are also midwives have less awareness to do BSE.

In addition, students of the Midwifery Profession FIKKES UNIMUS should already have knowledge and good behavior about BSE. By considering these things, researchers feel interested in knowing the behavior of BSE. The main problem with the implementation of BSE as a method of early detection of breast cancer is that it is rare to do it correctly. According to Bustan, this low awareness of self-examination does not only occur in women with low education or economy, but also those who are highly educated or quite established. Even though Notoatmodjo states that a person's behavior about health, among others, is determined by the knowledge of the person concerned.

2. Research Methods

The type of approach used in this research is quantitative methods. This research method uses the Cross-sectional method or cross-sectional study, where subjects are only observed once and this study is to study the correlation dynamics between independent and bound variables. The data collection technique used in this study was by interview using a structured questionnaire. The statistical test used was the chi square test. The sample in this study was 58 female college students.

3. Result

Table 1. Knowledge analysis of BSE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Good	42	79.2	79.2	79.2
	Enough	8	15.1	15.1	94.3
	Less	3	5.7	5.7	100.0
	Total	53	100.0	100.0	

It is known that of the 53 female students of the midwifery profession of Nursing and Health Sciences, University of Muhammadiyah Semarang who have good knowledge, there are 42 female students (79.2%). While those who have sufficient knowledge as many as 8 female students (15.1%) and those who have less knowledge as many as 3 female students (5.7%).

Table 2. Attitude Analysis on BSE

Valid		Frequency	Percent	Valid Percent	Cumulative Percent
Elementary School	Positive	31	58.5	58.5	58.5
Yunior School	Negative	22	41.5	41.5	100.0
Total		53	100.0	100.0	

Known in table 2. The attitude of female students about SADARI has a positive attitude. It can be seen in table 2, as many as 31 female students (58.5%) have a positive attitude towards BSE, while 22 female students (41.5%) have a negative attitude

Table 3. Awareness Behavior

		Frequency	Percent	Valid Percent	Cumulativ Percent
Valid	Support	32	60.4	60.4	60.4
	Not Supported	21	39.6	39.6	100.0
	Total	53	100.0	100.0	
	Support	32	60.4	60.4	60.4

In table 3. It is known that the behavior of female students supports the practice of BSE. Seen in table 3 as many as 32 female students (60.4%), female students support the practice of BSE. Meanwhile, as many as 21 female students (39.6%) had behaviors that were not supportive of the practice of BSE

Table 4. Relationship between knowledge and self-awareness behavior

			Support	Not Supported	Total
Knowledge	Good	Count	32	10	42
		Expected Count	25.4	16.6	42.0
		% within Conscious Behavior	100.0%	47.6%	79.2%
	Enough	Count	0	8	8
		Expected Count	4.8	3.2	8.0
		% within Conscious Behavior	0.0%	38.1%	15.1%
	Less	Count	0	3	3
		Expected Count	1.8	1.2	3.0
		% within Conscious Behavior	0.0%	14.3%	5.7%
Total	Count	32	21	53	
	Expected Count	32.0	21.0	53.0	
	Count				

% within Conscious Behavior	100.0%	100.0%	100.0%
-----------------------------------	--------	--------	--------

In table 4. that knowledge and behavior have a significant relationship. It is known that in table 4. Good knowledge will support the practice behavior of BSE. So that 32 female students of the midwifery profession of Nursing and Health Sciences, University of Muhammadiyah Semarang have good knowledge that will support the practice behavior of SADARI.

Table 5. Relationship Between Attitude and Conscious Behavior

			Support	Not Supported	Total
Attitude	Positive	Count	15	16	31
		Expected Count	18.7	12.3	31.0
		% within Conscious Behavior	46.9%	76.2%	58.5%
	Negative	Count	17	5	22
		Expected Count	13.3	8.7	22.0
		% within Conscious Behavior	53.1%	23.8%	41.5%
Total	Count	32	21	53	
Total	Expected Count	32.0	21.0	53.0	

Table 5 describes respondents who behaved unfavorably who had a positive attitude (76.2%) greater than those who had a negative category (23.8%). Respondents who behaved consciously supported those with negative category attitudes (53.1%) were greater than those with positive category attitudes (46.9%). The results of the chi square test showed that the p value (0.003) was smaller than the significant level (0.05) so Ho was rejected. Thus, there is a significant relationship between respondents' attitudes and BSE behavior.

4. Discussion

4.1. Conscious behavior

BSE behavior (Breast Self-Examination) is an action by women in recognizing the condition of their breasts in order to determine the presence or absence of abnormal lumps and other changes in breast shape which include: inspection and palpation of the breast. BSE is an early examination method to detect cancer in the breast, and is the simplest and easiest examination method to do in just a few minutes using the fingers by palpating the entire surface of the breast which is done routinely every month after the completion of menstruation (3).

Breast self-examination (BSE) is an examination technique where a woman examines her own breasts by looking and feeling with her fingers to detect whether there is a lump or not in her breast (4).

This self-awareness behavior is part of the health behavior proposed by Green, namely a person's response to stimuli or objects related to healthy illness, illness and factors that affect health-sickness as well as the environment, food, drink and health services. In other words, the activities of a person, both observable and unobservable, are related to the maintenance and improvement of health. This health care includes preventing or protecting oneself from disease and other health problems, improving health and seeking a cure if sick or affected by health problems (5).

The results showed that healthy behavior is behavior related to efforts to prevent or avoid and prevent the arrival of disease (Preventive) (6). In table 3. It is known that the behavior of female students supports the practice of BSE. Seen in table 3 as many as 32 female students (60.4%), female students support the practice of BSE. Meanwhile, as many as 21 female students (39.6%) had behaviors that were not supportive of the practice of BSE (7). Research conducted by Nugraheni (2010) shows that the level of awareness knowledge and self-awareness behavior among medical students is good. While the results of Baswedan's research (2014) on non-health female students at the University of Muhammadiyah Yogyakarta showed that 49.8% of female students had less SADARI behavior, sufficient behavior of 43.5% and good SADARI behavior of 6.7%. (9,10) (8).

The results of the study are in accordance with the results of Winarni's research, (2011) which shows that respondents' attitudes have an influence on BSE behavior, with a p value of 0.0001 ($p < 0.05$). From the results of the study showed that a supportive attitude is the most dominant influence on BSE behavior. This is in accordance with Lawrence Green's theory which states that attitude is one component of predisposing factors that influence behavior. This is supported by the theory of behavior change that attitudes play a major role in the formation of behavior where a person reacts according to the stimuli received.

4.2. The relationship between respondents' knowledge and conscious behavior

See table 4. that knowledge and behavior have a significant relationship. It is known that in table 4. Good knowledge will support the practice behavior of BSE. So that 32 female students of the midwifery profession of Nursing and Health Sciences, University of Muhammadiyah Semarang have good knowledge that will support the practice behavior of SADARI. This is in line with research Fatimah et al., (2018) There was a significant relationship between knowledge level ($p = 0.001$), attitude ($p = 0.001$), and education level ($p = 0.001$) with early detection behavior of BSE (9). This study is not in line with research Juwita & Prabasari, (2018b) which states that based on the results of statistical tests, there is no relationship of knowledge to breast self-examination behavior (BSE) in adolescent girls of female students of the Faculty of Nursing UKWMS (11). From experience and

research, it turns out that behavior based on knowledge will be more lasting than behavior that is not based on knowledge (10).

Knowledge is something that is very important to have in the practice of BSE. If a person has a good knowledge of BSE, then the action to do routine BSE every month will go well. However, if a person does not have a good knowledge of the meaning, benefits, and guidelines for doing BSE, then the action to do BSE will not work well (12). This is in accordance with what was stated by Notoadmodjo (2003) that knowledge is a very important domain for the formation of overt behavior and behavior based on knowledge is generally lasting. Knowledge is the result of knowing and this happens after people have sensed a particular object. Thus the source of knowledge comes from sensing both sight, hearing, smell, taste and touch (13).

Good knowledge becomes a solid basis for a person's behavior. This knowledge makes a person's behavior not easily changeable, but carried out for some time and will become a new habit. Knowledge is a predisposing factor of behavior. This means that knowledge becomes the factor that precedes the behavior that provides a rational or motivational basis (14).

After conducting bivariate tests between knowledge and BSE behavior showed a significant relationship. This study turned out to be in line with research conducted by Handayani (2008) conducted on early adult women in conducting breast self-examination in Kelurahan TAmong Pedan Klaten sub-district which found that there was a significant relationship between knowledge about breast cancer and BSE with BSE behavior (15).

The results of this study are in accordance with the theory of L. Green (2000) that knowledge has an influence on behavior change. Include knowledge as one of the predisposing factors for the formation of a behavior (16). Where there are three factors that influence behavior change, namely predisposing factors, reinforcing factors, enabling factors. Where knowledge as a predisposing factor (17).

Predisposing factors are personal preferences of a person or group into a learning experience and provide certain behavioral tendencies, which include knowledge, attitudes, beliefs, values and perceptions related to the motivation of a person or group to act.

4.3. The relationship between attitude and conscious behavior

Table 5 describes respondents who behaved unfavorably who had a positive attitude (76.2%) greater than those who had a negative category (23.8%). Respondents who behaved consciously supported those with negative category attitudes (53.1%) were greater than those with positive category attitudes (46.9%). The results of the chi square test showed that the p value (0.003) was smaller than the significant level (0.05) so H_0 was rejected. Thus, there is a significant relationship between respondents' attitudes and BSE behavior.

The results of this study show that positive respondents' attitudes have a tendency to do BSE well. Attitude is very closely related to behavior, attitude is one form of predisposing

factor of behavior so that if the attitude is good then there is a tendency to behavior is also good and vice versa. Similarly, the behavior of BSE will be greatly influenced by the attitude of respondents. The results of this study are in line with research conducted by Handayani (2008) on early adult women in Kelurahan TAmong Kecamatan Pedan Klaten which found that attitudes were significantly related to BSE behavior (18).

According to Azwar (2005), attitude formation is influenced by several factors, including the influence of other people who are considered important or other people around us is one of the social components that influence our attitudes. In general, individuals tend to have attitudes that are conformist or in line with the attitudes of people who are considered important. This tendency is partly motivated by the desire to avoid conflict with the person considered important (19).

This opinion is in accordance with the theory of L. Green (2000) Attitudes have an influence on the occurrence of behavior change. Include attitude as one of the predisposing factors for the formation of a behavior. Where there are three factors that influence behavior change, namely predisposing factors, enabling factors, reinforcing factors. Where attitude as a predisposing factor. In other words, a good respondent's attitude will be followed by good behavior if supported by other factors, in this case the respondent's knowledge (20).

There are still many attitudes of respondents who are categorized negatively, this is because there are still many respondents who have less knowledge about BSE, this is in accordance with the theory that attitudes are formed by cognitive which can be measured from knowledge

5. Conclusion

The conclusion of this study is that students of Nursing and Health Sciences of the University of Muhammadiyah Semarang have good knowledge of the practice of BSE, and the attitude of female students about BSE is very positive and students support behavior about the practice of BSE. There is a significant relationship between knowledge and conscious behavior. And there is a relationship between attitudes and behaviors of BSE.

References

1. Kanodia S, Thalabard JC, Lhoste K. Categorization and analysis of primary care mHealth apps related to breast health and breast cancer: systematic search in App Stores and content analysis. *JMIR cancer*. 2023;9(1):e42044.
2. Bresser PL, Kruger U. Healthcare educators' awareness, attitudes and practices of breast health: a mixed methods study. University of Pretoria; 2020.
3. Mohammed HJ, Mkhif Hassan AR, Jassim KH, AL zahraa Assad A abd, Ehmaid HM. Study the Causes of the Women's Fear from Breast Self-Examination in

- Babylon Province. *Indian J Forensic Med Toxicol.* 2019;13(3).
4. Mensah ABB, Mensah KB, Aborigo RA, Bangalee V, Oosthuizen F, Kugbey N, et al. Breast cancer screening pathways in Ghana: applying an exploratory single case study methodology with cross-case analysis. *Heliyon.* 2022;8(11).
 5. Naimah N, Mukhoirotin M. Pendidikan Kesehatan untuk Meningkatkan Pengetahuan, Sikap dan Kemampuan Praktik Remaja Tentang Pemeriksaan Payudara Sendiri. *J Insa Cendekia.* 2021;8(2):80–9.
 6. S. Notoadmodjo. *PENDIDIKAN DAN PERILAKU KESEHATAN.* JAKARTA: PT Rineka Cipta (2012). *Metodol Penelit Kesehat.* 2012;
 7. Beta AR, Maulida MN, Muharyani PW. Pengetahuan dan Keterampilan Remaja Putri Mengenai Pemeriksaan Payudara Sendiri (SADARI). In: *Proceeding Seminar Nasional Keperawatan.* 2019. p. 68–71.
 8. Purnamaningtyas S. Hubungan tingkat pengetahuan tentang kanker payudara terhadap perilaku praktik pemeriksaan payudara sendiri (SADARI) pada pegawai radioterapi RSUPN Dr. Cipto Mangunkusumo. Universitas Binawan; 2019.
 9. Fatimah HR, Meilani N, Maryani T. Faktor-faktor yang Mempengaruhi Perilaku Deteksi Dini Kanker Payudara dengan SADARI pada Wanita di Kecamatan Tegalrejo Kota Yogyakarta. *Poltekkes Kemenkes Yogyakarta;* 2018.
 10. Juwita L, Prabasari NA. Pengetahuan Pemeriksaan Payudara Sendiri (Sadari) Terhadap Sikap Dan Perilaku Pada Remaja Putri. *Adi Husada Nurs J.* 2018;4(2):11–7.
 11. Kurniati YP, Annisa CR. Study of Education Level as Determinant of Knowledge and Attitude Mother about 'SADARI' as Early Detection Efforts of Breast Cancer. In: *Prosiding University Research Colloquium.* 2021. p. 100–5.
 12. Risprawati BH, Rusiana HP, Halid S, Romadonika F, Supriatna D, Nadrati B, et al. Penyuluhan Kesehatan Tentang Pemeriksaan Payudara Sendiri (Sadari) Pada Santriwati Kelas X Dan Xi Di Pondok Pesantren Al-aziziyah. *J LENTERA.* 2021;1(1):35–41.
 13. Putri IM, Hidayah PW, Ismiyatun N. TINGKAT PENGETAHUAN DAN FAKTOR RISIKO KANKER PAYUDARA PADA KADER KESEHATAN DI WILAYAH KERJA PUSKESMAS KASIHAN 1 BANTUL YOGYAKARTA. *J Kebidanan Indones.* 2022;13(1).
 14. Khairunnisa K, Syaifudin S. Pengaruh Penyuluhan Pemeriksaan Payudara Sendiri (SADARI) terhadap Tingkat Pengetahuan Kader Posyandu Lada VII RW 7 Kecamatan Wirobrajan Yogyakarta Tahun 2012. *STIKES' Aisyiyah Yogyakarta;* 2012.

15. Wulansari I, Dewi T, Yusuf NAR, Jafar CPSH. Perilaku Pemeriksaan Sendiri Payudara (SADARI) dan Faktor Terkait pada Mahasiswa Keperawatan di Indonesia. *J Keperawatan*. 2022;14(S2):351–68.
16. Widiarti D, Komalasari R. Community Collage Service (KKN) student assistance to improve women's health by detecting breast cancer and cervical cancer in Amansari Village, Karawang Regency. *J Community Empower Heal*. 2022;5(3):236–40.
17. Gunarti NW. Hubungan Antara Motivasi, Minat Dan Sikap Tentang Periksa Payudara Sendiri (Sadari) Dengan Praktik Sadari Pada Remaja Putri Kelas XI: Relationship Between Motivation, Interests, and Attitudes about Breast Self-Examination (Consciousness) with Self-Examination Practices in Class Xi Young Women. *Indones Sch J Med Heal Sci*. 2023;2(09):838–45.
18. Surtimanah T, Sjamsuddin IN, Tamara MD. Determinan Pemeriksaan Payudara pada Mahasiswa STIKes Dharma Husada Bandung. *Sehat Masada*. 2020;14(2):135–50.
19. Tari T, Landi S, Hinga IAT. Determinan Pemeriksaan Payudara Sendiri (SADARI) pada Mahasiwi Fakultas Kesehatan Masyarakat Universitas Nusa Cendana Kupang Tahun 2023. *SEHATMAS J Ilm Kesehat Masy*. 2023;2(4):793–803.
20. Mularsih S, Cahyaningrum F, Rubiyati ES. Hubungan Tingkat Pengetahuan Dengan Praktik SADARI Pada Wanita Usia Subur Di Kelurahan Kemijen Semarang Timur Kota Semarang. *Siklus J Res Midwifery Politek Tegal*. 2017;6(2).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

