

Determinants Multivariate Analysis of Factors Influencing Breast-Self Examination Behavior College Student

Annisa Fitri Rahmadini^{1,*}, Shanti Ariandini²

¹Midwifery Study Program, Akademi Kebidanan Prima Husada Bogor, Indonesia

²Faculty of Agriculture, Universitas Muhammadiyah Purwokerto

*Corresponding author email: diniensuwasa@gmail.com dini1988@gmail.com

ABSTRACT. GLOBOCAN data states that in 2018 there were 18.1 million new cases with a mortality rate of 9.6 million deaths, where 1 in 5 men and 1 in 6 women in the world experience cancer. Data from the Ministry of Health of the Republic of Indonesia released on January 31, 2019, recorded breast cancer rates of 42.1 per 100,000 population, with an average death rate of 17 per 100,000 population. The importance of understanding related to cancer is needed. According to the National Breast Cancer Foundation, 70% -85% of breast cancers are found through the Breast Self-Examination (BSE) method. The purpose of this study is to determine the determinants multivariate analysis of factors influencing breast-self examination behavior college student Akademi Kebidanan Prima Husada Bogor, Bogor City 2019. The research method uses analysis with approach cross-sectional, test analysis with logistic regression. The population in this study were all college students in Akademi Kebidanan Prima Husada Bogor as many as 250 people using a total sampling of 250 according to inclusion criteria. The research concludes that level III respondents (61.2%) had poor BSE behavior compared to good BSE behaviors at a level I (66.1%) and level II (69.6%). The research concludes BSE behavior is influenced by knowledge, family support, and sources of information.

Keywords: Multivariate, Analysis, Breast-Self Examination, Behavior, College Student.

1. INTRODUCTION

Based on data from the Global of Cancer (GLOBOCAN) in 2018 there are at least about 18.1 million new cancer cases in the world. Also, the number of deaths is more than 9.6 million. The ratio is one in five men and one in six women in the world have cancer.

The International Agency for Cancer (IARC) published a slight increase in the number of patients compared to 2012. At that time there were an estimated 14 million new cancer cases and 8 million cancer deaths. The study results also found that more than half the mortality rate in Asia is caused by cancer. Meanwhile, Europe accounted for about 23 percent of cases, America around 21 percent, and Africa Continent around 7 percent. Head of Cancer Control at IARC Dr. Freddy Bray estimates there will be 29 million cancer cases by 2040, accompanied by 16 million deaths.

In Indonesia, the number of cancer sufferers is quite high. The cancer rate in Indonesia is 136.2 of 100,000 population. And this number makes Indonesia ranks 8th in Southeast Asia. While at the Asian level, Indonesia ranks 23rd (Depkes RI, 2018). The highest cancer rate in Indonesia for men is lung cancer, at 19.4 of 100,000 population with an average death of 10.9 of 100,000 population. Followed by liver cancer of 12.4 of 100,000

population with an average death of 7.6 of 100,000 population. While the highest cancer in women is breast cancer, which is equal to 42.1 of the 100,000 population with an average death of 17 of 100,000 population. Cervical cancer followed by 23.4 of 100,000 population with an average death of 13.9 of 100,000 population (Departemen Kesehatan RI, 2018).

Based on the 2018 Basic Health Research data, the prevalence of cancer in Indonesia shows an increase from 1.4 of 1,000 population in 2013, to 1.79 of 1,000 in 2018. The highest cancer prevalence in Indonesia is in the province of Yogyakarta, namely 4, 86 of 1,000 population. Followed by West Sumatra 2.47 of 1,000 population and Gorontalo 2.44 of 1,000 population (Kemenkes RI, 2018). West Java is the province with the largest population in Indonesia, which is 40,737,594 people, where the female population is 49.5%, there is a tumor/cancer incidence of 0.5%, an estimated incidence of 26 / 100,000 women, or around 5,200 cases. The incidence of breast cancer is also affected due to an increase in life expectancy, lifestyles that harm health and environmental conditions (Friska and Suci, 2017). In the city of Bogor, there were 332 cancer sufferers in 2018 and the highest was breast cancer sufferers, then cervical or cervical cancer. This figure increased from the previous year which was recorded as many as 130 patients (Dinas

Kesehatan Kota Bogor, 2018). Breast cancer is a deadly disease that makes women the main target. The earlier the detection, the greater the possibility of recovery. BSE is one of the early detection of breast cancer that can be done by the woman herself with an easy method, low cost, and carried out promptly. This method is important to prevent cancer found in the final stage, which has a high mortality rate.

2. METHOD

The study was conducted at the AkademiKebidanan Prima Husada Bogor in April - July 2019. The population in this study was 246 female students and the sampling technique used total sampling. The age

range of respondents 19-22 years. Data collected in this study are primary data. The way to collect data through interview techniques is by using a questionnaire as an instrument. The questionnaire was modified coming from Eva Susilawati, Eka, and Monika. In general, data processing activities can be divided into several main stages, namely Editing, Coding, Data Entry, Data Tabulation. Before conducting data analysis, the measurement results are categorized. The tools used for data collection in this study were a questionnaire consisting of 6 variables Age, Residence, Knowledge of conscious methods, conscious behavior, family history of cancer, Family support (closest people), Information Sources.

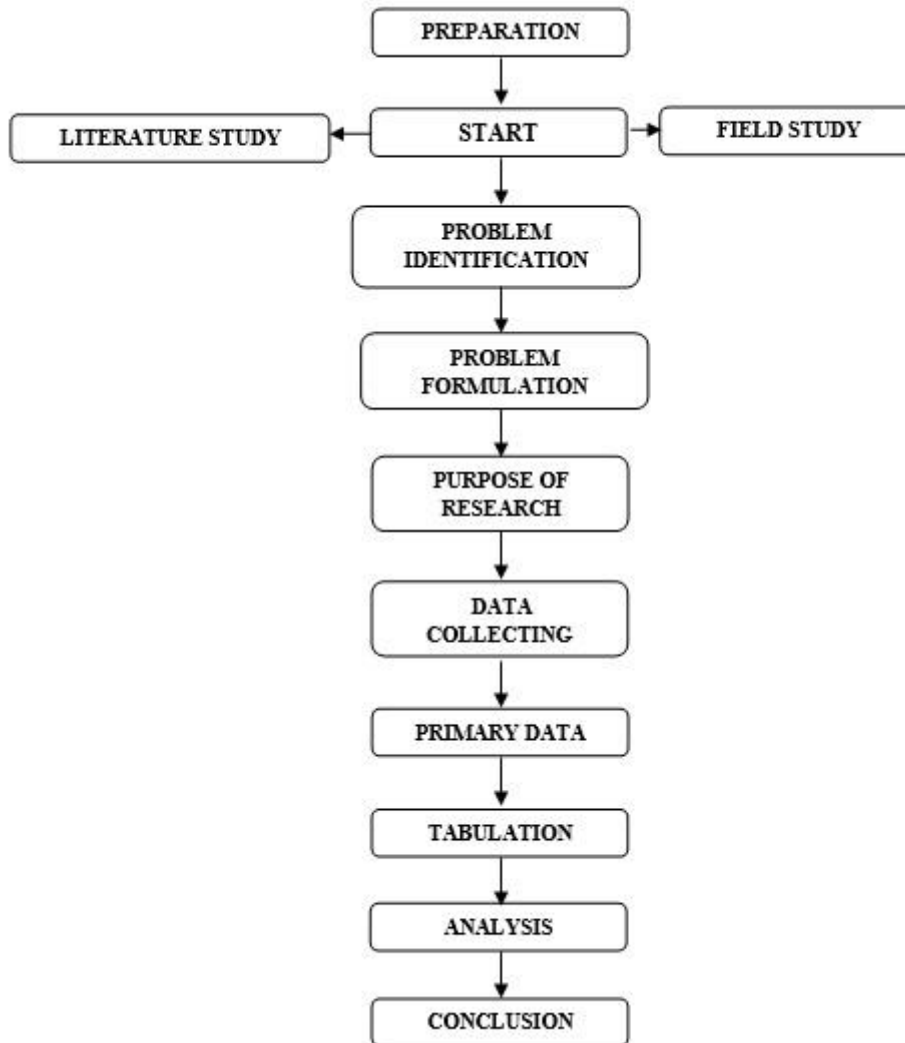


FIGURE 1. Flow chart of research

3. RESULTS AND DISCUSSIONS

Based on the results of statistical analysis at three levels of respondents, it turns out that the factors associated with BSE behavior are knowledge, family

support (closest people), and sources of information. For more details can be seen in table 1 and table 2.

TABLE 1. Results Of Univariate Analysis

Variable	Respondents					
	1 st Level		2 nd Level		3 rd Level	
	Categories	%	Categories	%	Categories	%
Behavior	Good	66,1	Good	69,6	Not Good	61,2
Knowledge	Good	71,2	Good	67,6	Good	53,1
History	No History	88,1	No History	54,4	No History	71,4
Family Support	Support	54,2	No Support	57,4	No Support	51,3
Age	18	45,8	20	54,4	21	61,3
Address	Home	52,5	Non-Home	55,9	Non-Home	63,9
Information Source	>3 people	67,8	>3 people	58,8	>3 people	56,3

Based on the results of observations, BSE behavior is not well found in respondents at the 3rd level. This is not in line with the knowledge that was obtained at 1st level. Therefore, external factors play an important role.

The results of the study also found that there are still those who feel lazy to do BSE. This is due to the lack of intention and motivation to do breast self-examination, following what was stated by Notoatmodjo (2007) that behavior is formed through a certain process, and takes place in human interaction with the environment. The factors that play a role in the formation of behavior can be divided into two namely internal and external factors. Internal factors such as intelligence, perception, motivation, interests, emotions, and so on to process influences from outside. External factors include objects, people, groups, and cultural products that are targeted in realizing the form of behavior. According to Sutjipto (2013) states that the high mortality rate due to breast cancer caused by most patients coming at an advanced stage. This is caused by several factors including the patient not knowing or not understanding about breast cancer, lack of attention to the breast, fear of surgery, and feeling lazy and ashamed to show breasts (Sutjipto, 2013). The mean knowledge difference for the pre-post intervention is 0.18 ± 0.695 ($P < 0.05$). The respondents' pre- post interventions score of satisfactory practical competency were 10(16.4%) and 43(70.5%), respectively as well. The mean net gain for the pre-post breast self-examination intervention is 0.51 ± 0.62 ($P < 0.001$). Both the

knowledge and practical competency scores showed highly significant increment after the intervention, showing that the research hypothesis was accepted (Abera et al., 2017). When the students' abilities to do BSE before and after the BSE peer education and their mean self-esteem scores were compared, it was found that there were significant increases in BSE ability/skills and self-esteem scores. Similarly, in the study by Tuna et al., too, it was identified that there were significant increases in BSE ability/ skills and self-esteem scores before and after the BSE education. Self-esteem is people's evaluation and approval of their own worth and is a positive mood that enables them to be satisfied and pleased with themselves and find themselves positive without considering themselves inferior or superior. In line with the definition, it is thought that one who loves and accepts his/her own body seeks for healthy lifestyle behaviors and cares about his/her health while those who do not care about their own bodies neglect both their health and body (Ayran et al., 2017).

More than half of the participants practiced BSE. Age, exercise and family history of cancer significantly influenced the practice of the BSE. Lack of knowledge, not having any symptoms and being afraid of being diagnosed with breast cancer were the main barriers to practicing BSE. There is an urgent need to develop a continuous awareness campaign among university students on the importance of performing BSE by (Al-naggar et al., 2011). It is important that effective methods should be selected to develop breast

cancer knowledge, BSE performance and perceived health beliefs of the nursing students, who will play major roles in training women in the future. Both methods used in this study similarly increased breast cancer and BSE knowledge and the perception of health belief confidence. However, STHM seems effective in raising students' awareness in BSE, due to the increase in 15 days and 3 months post-training frequency of performing BSE. Either of the traditional lecturing method or the Six Thinking Hats Method can be chosen according to the suitability of the teaching material and resources in order to raise nursing students' awareness in breast cancer (Karadag et al., 2014).

By the results of the table above, external factors play an important role. Bad behavior of 3rd level respondents is influenced by there is no family history of cancer. Respondents who have breast cancer history more aware of the possibility of cancer and aware to do the early detection from the beginning. Furthermore, behavior or related to decision making is inseparable from the role of the family. As expressed by experts from WHO said one of the causes a person's behavior is influenced a lot by people who are considered important to the

person. People who are considered important can be family, husband, or the closest person to the woman. This is following the theory of Green (1980) that changes in behavior towards health measures depend on there being support, as for one of the supports that can be obtained, namely support from family and close people. I agree with the theory of Green (1980) which said that behavioral changes to health measures depend on there being support, while one of the support that can be obtained is support from family/husband, thus it will be a reinforcement for women to decide to take early detection measures.

Bad behavior is supported by the respondents' residence in the dormitory (non-home). A home is a starting place for teens to shape behavior. Adolescents are a very critical period in terms of reproduction that is useful for adolescents to recognize very well about reproductive health, especially the prevention of breast cancer by the BSE method so that it can be well maintained based on the values and norms adopted. In the process of searching for identity, adolescents must be given guidance, direction, and education from the surrounding environment so that the process of searching for identity leads to commendable attitudes and behavior.

TABLE 2. Logistic Regression Test Results

	B	SE	Wald	p value	OR (95%)
1 st Level					
Information Source	2,337	0,697	11,227	0,001	10,347
2 nd Level					
Family Support	1,491	0,672	4,917	0,027	4,443
Information Source	1,686	0,629	7,189	0,007	5,398
3 rd Level					
Knowloedge	1,061	0,428	6,134	0,013	2,890
Information Source	1,606	0,420	14,623	0,000	4,983

Based on the results of the analysis, it can be concluded that knowledge, family support (the closest people), and sources of information play a role in improving self-awareness behavior. The results of this study are by Green's theory in which behavior in doing breast self-examination can be influenced by predisposing factors, reinforcing, and enabling factors.

According to Lawrence Green, the health of a person or community is influenced by 2 main factors, namely behavior factors (behavioral causes)

and factors outside behavior (non-behavior causes) (Notoatmodjo, 2010). Critically, the ascertainment of incident cancer cases should be accompanied by data on the mode of cancer detection. Three broad categories could capture the driving force that led to the cancer diagnosis: patient symptoms and signs (clinically detected), the systematic search for early cancer (screening-detected), or a chance finding (incidentally detected). Distinguishing among these three categories would further explain the origins of changes in reported incidence (Welch et al., 2019).

Furthermore, it is influenced by 3 main factors which are summarized in the acronym PRECEDE: Predisposing, Enabling, and Reinforcing Causes in Educational Diagnosis and Evaluation. PRECEDE is a direction in analyzing or diagnosing and evaluating behavior for health education (promotion) interventions. Public education on early detection of BC, health providers' engagement on appropriate detection, and referral and health care financing on BC is highly recommended (Agbokey et al., 2019). With the current study, students had the opportunity to fill knowledge gap about epidemiology, risk factors, protection of BSE and other BSE topics through peer education. Although short-term feedback was obtained, it was noted that students' BSE knowledge increased and they enhanced their BSE skills considerably. Besides, the study results demonstrated effects of peer education upon self-esteem, which were not studied before. In light of these results, it may be recommended that peer education models should be used in larger samples in order to increase students' knowledge and awareness levels, to provide more extensive information in curriculum, to extend educations and to increase their efficacy. Trainings to be given at an early age will draw attention of youngsters and raise their awareness. Meanwhile, a long-term follow up will be useful in determining sustainability of behavior change and knowledge preservation (Ayran et al., 2017). Respondents can realize or not realize depends on the stimulus it receives. When the stimulus is received support the respondent will make aware, but if the stimulus received does not support the respondent will not do realize (Wulandari & Ayu, 2017).

Services and information about early detection of breast tumors provided by health workers has a big enough share to changes in individual behavior against BSE. Health workers like nurses, midwives and doctors is a visible source of information competent for people who want improve Physical Conditions and psychological. Health workers provide information and skills and can change people's behavior become healthier (Khairunnissa & Wahyuningsih, 2018).

The family situation that functions as a "terminal" or temporary stop makes children feel less cared for, so he will look for activities outside the home with his friends. If these friends behave improperly, it can trigger the child to participate in misbehavior, such as delinquency such as drinking, gambling, criminality, difficult to regulate, rebelling, speeding on the road, damage public facilities, and so on. These delinquencies are carried out by

teenagers because of the lack or lack of guidance and supervision from parents.

The respondents' exposure to information sources with knowledge shows that respondents have a good knowledge when compared to those who have little or no exposure to information sources. The respondents' exposure to information sources with knowledge more positive behavior towards early detection. Effective health information, especially information about breast cancer and early detection is very important, especially in terms of increasing knowledge, confidence in attitude, and correct awareness about everything about breast cancer and BSE.

Yayasan Kanker Indonesia (YKI) in collaboration with institutions both government and private sector has done a lot of socialization to provide information to the public through electronic media (TV, radio, and even internet) and print media (distribution of brochures in clinics and hospitals, articles and magazines). One of them published a brochure for the early detection of breast cancer.

It can be concluded that environmental factors, which have a role that is no less important than other behavioral drivers. These environmental factors vary in variety, there are friends with games (peer-groups), the influence of media and television, and even the parents themselves. In adolescence, their closeness to peer groups is very high because besides peer-group ties replace family ties, they are also a source of affection, sympathy, and understanding, sharing experiences and as a place for adolescents to achieve autonomy and independence.

So it is not surprising that adolescents tend to adopt information received by their peers, without having a significant basis of information from more reliable sources. The influence of media and television is often imitated by adolescents in their daily behavior. Adolescent development in general can be influenced by parents. The difficulty that arises then is when inadequate parental knowledge causes a less open attitude and tends not to provide an understanding of the problems and information about breast cancer and breast self-examination. As a result, children get information that is not healthy.

Motivation is a driver of behavior. The relationship between the two constructs is quite complex, among others can be seen as follows: The same motivation can only drive different behaviors, so the same behavior can be directed by different motivations. Certain motivations will encourage someone to do certain behaviors (Pratiwi and Hari, 2011). The practice of BSE in the prevention of

breast cancer in the study population. Sensitization campaigns and educational programmes ought to be intensified in order to address this issue (Nde et al., 2015). Therefore, even though the respondent had received information about breast cancer and BSE but the respondent didn't the sensing properly, this resulted in poor understanding of the respondents. (Nugraheni, 2010). This study has revealed moderate knowledge of risk factors for breast cancer and the screening methods as well as the moderate level of practice of breast self-examination among female students. To perform the BSE correctly, the students have to be more concern about relevant education programs that are having around them (Kalithasan et al., 2019). An overall picture from the previous studies on students shows that the level of awareness and knowledge about BSE is low. Thus, an educational intervention program should be done among students to raise the students' level of knowledge and awareness towards BSE. Although breast cancer occurrences among students are uncommon, but promoting BSE can give them an early awareness and more knowledge for practising BSE right through their adulthood (Anis et al., 2018). The study results confirm that the awareness and knowledge levels in the study population was quite poor at baseline. Educational intervention using pamphlet providing clear, precise and required information about breast cancer and steps for performing breast self-examination has been found to be useful (Ali et al., 2019).

The relationship between the level of knowledge about BSE and BSE behavior on non-health student influenced by various factors including experience, education, resources, and bridged by a positive attitude.

4. CONCLUSIONS AND SUGGESTION

The most influential factors on BSE behavior are knowledge, family support, and information sources in the effort to detect and provide understanding as early as possible by its development to increase concern for the female students themselves. Also, control is also needed in the association of adolescents with peers and access to information on youth, especially the internet that allows teens to get information about breast cancer and BSE.

ACKNOWLEDGMENTS

This research supported by Akademi Kebidanan Prima Husada Bogor.

REFERENCES

- [1] Abera, H., Mengistu, D., & Bedaso, A. (2017). Effectiveness of planned teaching intervention on knowledge and practice of breast self-examination among first year midwifery students. *PLoS ONE*, *12*(9), 1–9. <https://doi.org/10.1371/journal.pone.0184636>
- [2] Agbokey, F., Kudzawu, E., Dzodzomenyo, M., Ae-Ngibise, K. A., Owusu-Agyei, S., & Asante, K. P. (2019). Knowledge and Health Seeking Behaviour of Breast Cancer Patients in Ghana. *International Journal of Breast Cancer*, *2019*. <https://doi.org/10.1155/2019/5239840>
- [3] Al-naggar, R. A., Al-naggar, D. H., Bobryshev, Y. V., Chen, R., & Assabri, A. (2011). *AI-Naggar*. *12*, 1173–1178.
- [4] Ali, A. N., Yuan, F. J., Ying, C. H., & Ahmed, N. Z. (2019). *Effectiveness of Intervention on Awareness and Knowledge of Breast Self-Examination among the Potentially at Risk Population for Breast Cancer*. *2*(1), 1–13.
- [5] Anis, N., Che, I., Hidayah, N., & Bakar, A. (2018). Breast Self-Examination among Female Students: A Systematic Review. *International Journal of Education and Research*, *6*(11), 139–150.
- [6] Ayrar, G., Firat, M., Kucukakca, G., Cuneydioglu, B., Tahta, K., & Avci, E. (2017). The Effect of Peer Education upon Breast Self- Examination Behaviors and Self-Esteem among University Students. *European Journal of Breast Health*, *13*(3), 138–144. <https://doi.org/10.5152/tjhb.2016.3264>
- [7] GLOBOCAN (2018). *Cancer today*. International Agency for Research on Cancer.
- [8] Green, Lawrence, 1980. *Health Education : A Diagnosis Approach*, The John Hopkins University, Mayfield Publishing Co.
- [9] Kalithasan, S., Eka, G., & Antara, R. (2019). *Awareness of breast cancer risk factors and practice of breast self - examination among female students in Medical Faculty , Udayana University , Bali*. *10*(1), 28–31. <https://doi.org/10.1556/ism.v10i1.320>
- [10] Karadag, M., Iseri, O., & Etikan, I. (2014). Determining nursing student knowledge, behavior and beliefs for breast cancer and breast self-examination receiving courses with two different approaches. *Asian Pacific Journal of Cancer Prevention*, *15*(9), 3885–3890.

- <https://doi.org/10.7314/APJCP.2014.15.9.3885>
- [11] Kemenkes RI, 2018. Profil Kesehatan Indonesia 2017. Jakarta: Kemenkes RI
- [12] Kementerian Kesehatan RI. 2018. *Healthy Portrait of Indonesia from Riskesdas 2018*. Diunduh 25 Februari 2019.
- [13] Khairunnissa, A., & Wahyuningsih, S. (2018). Faktor-faktor yang Berhubungan dengan Perilaku Pemeriksaan Payudara Sendiri (SADARI) pada Mahasiswi Fakultas Kedokteran Universitas Pembangunan Nasional "Veteran" Jakarta, 2017. *Jurnal Profesi Medika: Jurnal Kedokteran Dan Kesehatan*, 11(2), 73–80. <https://doi.org/10.33533/jpm.v11i2.226>
- [14] Nde, F. P., Assob, J. C. N., Kwentu, 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 Womens Health. *BMC Research Notes*, 8(1), 4–9. <https://doi.org/10.1186/s13104-015-1004-4>
- [15] Notoadmodjo S. 2007. *Kesehatan masyarakat ilmu dan seni*. Jakarta: Rineka Cipta Notoatmodjo. (2010). *Ilmu perilaku kesehatan*. Jakarta: Rineka Cipta.
- [16] Nugraheni, A. (2010). Hubungan tingkat pengetahuan tentang sadari dengan perilaku sadari sebagai deteksi dini kanker payudara pada mahasiswi DIV kebidanan FK UNS. *Universitas Sebelas Maret*.
- [17] Sutjipto. *Ada apa dengan kanker payudara*. www.ykpiabar.org. 2011. Diakses tanggal 27 Maret 2013.
- [18] Welch, H. G., Kramer, B. S., & Black, W. C. (2019). *Spe c i a l R e p o r t Epidemiologic Signatures in Cancer*.
- [19] Wulandari, F., & Ayu, S. M. (2017). Hubungan Tingkat Pengetahuan Dan Sikap Dengan Perilaku Pemeriksaan SADARI Mahasiswi. *Prosiding Seminar Nasional IKAKESMADA "Peran Tenaga Kesehatan Dalam Pelaksanaan SDGs,"* 1(1), 137–144.