



The Behaviour Characteristics in Early Detection of Breast Cancer among Islamic Boarding School Students

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Abstract

Introduction: Breast Self-Examination (BSE) is an effort of self-early breast cancer detection, which is recommended to be carried out routinely from the age of 12 years. As this campaign is important to reach out, especially to young people, this study has been conducted to evaluate the relationship between the student characteristics and their perception of BSE and breast cancer (susceptibility, severity, benefits, barriers, and self-efficacy), school supports, and media exposure might affect their behavior on implement BSE practice. This study focused on students in Islamic Boarding School Mijen, Semarang.

Methods : This research is a descriptive study with a cross-sectional approach. The study population was 166 students of boarding school aged 12-21 years old who have experienced menstruation. The instrument used was a questionnaire and data was analysed using Chi-square test.

Results: The results showed that 50.6% of students had good BSE practices with several related variables, are a family history of breast cancer ($p = 0.048$), knowledge ($p = 0.0001$), perceived susceptibility ($p = 0.020$), perceived severity ($p = 0.001$), perceived benefits ($p = 0.005$), perceived barriers ($p = 0.007$), and information on media exposure ($p = 0.013$).

Conclusion: Most students at the Mijen Islamic boarding school have done BSE well. This is supported by having a history of breast cancer in the family and having good knowledge, perceived (susceptibility, severity, benefits, and barriers), and exposure to information media.

Keywords: breast cancer, breast self-examination, health belief model, boarding school, family history

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Introduction

Breast cancer is one of the main problems in women's health globally, including in Indonesia. Data from the Global Cancer Observatory from the WHO in 2018 stated that breast cancer is the most common cancer in Indonesia, with 58,256 cases out of 348,809 cancer cases. The number of breast cancer cases continues to

increase every year and in 2020 the total number of cases of breast cancer reach 65.858 cases out of 396,914 cases.¹ In addition, the Basic Health Research Data of Indonesia (Riskesdas) in 2018 also stated that in 2013 breast cancer had a prevalence of 1.4% and increased to 1.79% in 2018. Central Java became the top 3 provinces with a prevalence of 2.11%.^{2,3}

Semarang is one of the big cities in Central Java that attracts attention regarding the incidence of breast cancer because Semarang is one of the areas with a high number of breast cancer cases in Central Java. Based on data from the Semarang City Health Office in 2018, it was stated that almost 0.4% of women in Semarang City had breast cancer, and in 2017, based on the top ten non-communicable diseases throughout Semarang City hospitals showed that breast cancer was ranked 7th with 2,127 cases and it increases annually became 3,124 cases in 2019. In addition, In addition, the Semarang City Health Office data also says that breast cancer is the top 3 non-communicable diseases that experienced the highest increase in cases from 2015 to 2019, with 1,745 cases. At the time of breast examination by trained personnel or Clinical Breast Examination in Semarang City, as many as 24.88% of Eligible women were detected who had lumps in their breasts. This percentage shows that Semarang City has the highest risk factor for breast cancer compared to other regions in Central Java.³

To prevent the spread of the breast cancer, an early detection can be used to see the early signs of the potential for breast cancer. This practice is expected to increase the life expectancy from breast cancer patients. One of the actions of breast cancer early detection is by doing BSE (Brest Self-Examination). By doing BSE, the risk of dying from breast cancer can decrease by up to 20%. In addition, if a person is detected with breast cancer and treated appropriately, the rate of a person recovering from the disease can reach 80-90%.⁴

BSE practice should be done regularly every month on the tenth day (starting from the first menstruation). This practice helps on detecting early changes that might be caused by breast cancer. The BSE practice is important to be implemented as the growth of breast cancer is hardly observed. The cancer cells will only grow by 1 cm within 8-12 years. These facts underlie the reason why the American Cancer Society recommends that all women do BSE regularly every month, started at the age of 20 because it is considered adequate for early detection.⁵

However, now, cancer cases are found at a younger age. According to data from the Semarang City Health Office in 2019, 3 breast cancer cases began to be found at the age of under 15 years, and the cases increased up to 8 people in 2020. Therefore, this BSE practice recommendation has been renewed by the Indonesian Ministry of Health to be carried out since women enter the age of 12 years or as soon as they start entering their childbearing age.⁶

Female teenagers, especially those who are in Islamic boarding schools, are often not fully exposed to this kind of information. Therefore, this study tried to acknowledge the factors that encourage female student to do the BSE practice. We focused on the female students of the Islamic boarding school in Mijen District, Semarang City. Based on data on reporting breast cancer cases in every public health center in Semarang City in 2020, it was found that the highest reporting rate of breast cancer cases was in Mijen District in our preliminary study at the Mijen Health Center and the Islamic boarding school, Mijen Health Center has never provided socialization about breast cancer or BSE to Islamic boarding schools. Therefore female teenagers, the Mijen Islamic boarding school, have not been maximally exposed to information related to reproductive health. Islamic boarding schools are rarely giving the information related to human reproductive (especially breast cancer) as they mostly only provide the common knowledge and more focused on religious lessons. Thus, most of the female students in Islamic boarding school in Mijen district have not been fully exposed to information related to reproductive health, including breast health problems and breast cancer.

The Health Belief Model theory can explain the relation between individual beliefs related to a health effort. This model demonstrates that a person perceives himself to be vulnerable, feels that his illness may have serious consequences, feels that prevention efforts will provide benefits, thinks that there are obstacles in carrying out preventive behavior that is proportional to the benefits obtained, and believes she can take prevention, is more

likely to be willing to take preventative measures. A health behavior includes the practice of BSE to early detection of breast cancer.⁷

This study aims to analyze the relation between female students' characteristics and BSE practice of early detection of breast cancer at Pondok Pesantren, Mijen District, Semarang City.

Methods

This study is a quantitative study using a descriptive approach and a cross-sectional study design. The population that became the subject of this research was students from three Islamic boarding schools in Semarang City (n=285). The sample in this study is determined using a simple random sampling technique with inclusion criteria being students from one of the boarding schools, aged at least 12-21 years, already menstruating, and willing to be students. The sample size was determined based on the Slovin formula, and the sample for this study was 166 students. The data in this study were taken using a self-filling study questionnaire. This study was approved by research ethics committee, the Faculty of Public Health, Diponegoro University, stated that the states passed the ethical review "Ethical Approval" No. 240/EA/KEPK-FKM/2021.

In this study, there is a dependent variable, namely the practice of BSE. The practice variable consisted of 10 questions about the frequency and procedure of practicing BSE. The practice was scored 1 for each good practice answer and 0 for each bad practice answer. The total score for all practices was 10. A practice score of 5 or less was categorized as less, and a score of 6 or more was classified as good. The independent variables consist of age, family history of breast cancer, knowledge about breast cancer and BSE, perceived susceptibility of breast cancer, perceived severity of breast cancer, perceived benefits of BSE practice, perceived barriers to BSE practice, and perceived self-efficacy towards BSE practice. Knowledge consisted of 20 questions about breast cancer, the function of BSE, and the procedure of BSE. It was scored 1 for each good practice answer and 0 for each bad practice answer. The total score

for all knowledge was 20. A knowledge score of 14 or less was categorized as less, and a score of 15 or more was classified as good. All questions were developed by the researcher and tested on 30 students in other Islamic boarding schools to assess the validity and reliability. The instruments of this study were valid and reliable. The data obtained were then analysed by chi-square test, using SPSS software.

Results

Research Location

The research located in Mijen District, which is the sub-district with the highest number of breast cancer cases compared to other sub-districts in Semarang City. The results of this study show that the results of characteristics of the majority of students are in the category of middle teens (15-17 years), which is 54.82%, and the majority do not have a family with a history of breast cancer by 92.17%. In addition, most of the students practice BSE in the good category, which is 50.61%.

More students who have good knowledge related to breast cancer and the practice of BSE by 51.81%. The majority of students have a well-received susceptibility to BSE (56.63%), and more have a well-perceived severity of breast cancer by 62,05%. In addition, most students have good perceived benefits of BSE practice, 53.61%, and have extensive perceived barriers to BSE practice, which is 57.83%. Most of them feel they can do BSE, 68.07%, and more students feel that boarding school administrators support them in doing BSE 58.43%. Finally, most students think they have been well exposed to information media about BSE by 51.20%.

The Chi-Square test table 1 results that seven independent variables related to the dependent variable of BSE practice are a family history of breast cancer ($p = 0.048$), knowledge about breast cancer, and BSE ($p = 0.0001$), perceived susceptibility to cancer. breast cancer ($p = 0.020$), perceived severity of breast cancer ($p = 0.001$), perceived benefits of BSE practice ($p = 0.005$), perceived barriers to BSE practice ($p = 0.007$), and information media exposure ($p = 0.013$).

Table 1. Factors related in BSE practices

Variable (n=166)	BSE Practice						p-value
	Less		Good		Total		
	f	%	f	%	f	%	
Age							
12-14 years old	37	56,06	29	43,94	66	100	0,135
15-17 years old	43	47,25	48	52,75	91	100	
18-21 years old	2	22,22	7	77,78	9	100	
Family History of Breast Cancer							
Yes	3	23,08	10	76,92	13	100	0,048*
No	79	51,63	74	48,37	153	100	
Knowledge about Breast Cancer and BSE							
Less	51	63,75	29	36,25	80	100	0,0001*
Good	31	36,05	55	64,95	86	100	
Perceived Susceptibility to Breast Cancer							
Disparage	43	59,72	29	40,28	72	100	0,020*
Convinced	39	41,49	55	58,51	94	100	
Perceived Severity to Breast Cancer							
Disparage	42	66,67	21	33,33	63	100	0,001*
Convinced	40	38,83	63	61,17	103	100	
Perceived Benefits to BSE Practice							
Disparage	47	61,04	30	38,96	77	100	0,005*
Convinced	35	39,33	54	60,67	89	100	
Perceived Barriers to BSE Practice							
Big	56	58,33	40	41,67	96	100	0,007*
Small	26	37,14	44	62,86	70	100	
Perceived Self-efficacy to BSE Practice							
Not capable	30	56,60	23	43,40	53	100	0,203
Capable	52	46,02	61	53,98	113	100	
Islamic Boarding School Management Support							
Less Supportive	37	53,62	32	46,38	69	100	0,358
Supportive	45	46,39	52	53,61	97	100	
Information Media Exposure							
Less	48	59,26	33	40,74	81	100	0,013*
Good	34	40,00	51	60,00	85	100	

*sig. p<0,05 with chi square test and alfa=0.05

Discussion

Relation between Family History of Breast Cancer and BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found in the group of female students who did not have a history of breast cancer in their family by 47.6% compared to students whose families had a history of breast cancer 23.1%. According to the chi-square test,

5% significance showed a p-value of 0.048, thus it can be concluded that there is an association between a family history of breast cancer and BSE practice. These results align with Aulia and Yunidar, which mentions that a family history of breast cancer is related to BSE practice.^{8,9} Female teenagers with a family history of breast cancer are twice as likely to develop breast cancer. This can raise a person's susceptibility to disease, as stated in the

Health Belief Model theory. When a person considers himself at high risk of exposure, he will feel a real danger if they experience an adverse condition or contract certain diseases. This can motivate someone to take preventive action or early detection to do BSE to detect cancer early. In addition, if a person has a family member with a history of breast cancer, it is possible that the family can be a source of information for that person about breast cancer and breast self-examination practice so that people are encouraged to practice BSE.^{7,10}

Relation between Knowledge about Breast Cancer and BSE and BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found in female students with poor knowledge with 63.7% compared to 36.0% with good knowledge. The chi-square test with a significance of 5% shows a p-value of 0.0001; It can be concluded that there is a relation between the variables of knowledge about breast cancer and BSE and BSE practice. This aligns with Sri and Heriyanti, which mention that knowledge is related to BSE practice^{5,11}

The Health Belief Model theory states that a person will take action depending on his assessment of the threat and consider the advantages and disadvantages of the behavior. This can be influenced by the knowledge variable, one of the structural variables that form a perception. Many of the students in this study still lacked understanding of breast cancer and BSE, especially understanding regarding risk groups for breast cancer.

Knowledge is the result of knowing when the human senses catch particular objects. Knowledge is one of the main aspects that shape a person's behavior. Someone with good knowledge can form beliefs in perceiving reality, determine one's behavior towards particular objects, and become the basis for making a person's decision to act. Knowledge also makes the actions taken by a person last longer than actions that are not based on knowledge. If someone has good knowledge regarding breast cancer and early detection through BSE, then the

possibility of someone doing BSE tends to be higher than someone who does not know about it because, with less knowledge, it will not cause a positive response to taking action.^{7,12}

Relation between Perceived Susceptibility to Breast Cancer and BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found in female students who had a poorly perceived susceptibility at 59.7% compared to those with a well-perceived susceptibility at 41.5%. The chi-square test results using Fisher's Exact show a p-value of 0.020. It can be concluded that there is a relation between the variable perceived susceptibility to breast cancer and BSE practice. That breast cancer's perceived susceptibility is related to BSE practice.¹³ Many female students in Islamic boarding schools have a low perceived susceptibility because many feel they are not yet vulnerable to breast cancer because they are under 30 years old. So, there are still many female students who have BSE practices in the poor category.

In theory, the Health Belief Model is an individual's belief about the possibility of getting a disease or health problem. Those who believe they have a low risk of a disease are more likely to deny contracting an adverse condition. Meanwhile, someone who considers themselves to have a high risk will feel there is a real danger if they experience a negative situation such as breast cancer. This perceived susceptibility will also form a perceived threat where the higher the perceived threat, the higher the prevention efforts that will be carried out, such as BSE. In this case, a woman who believes that she is at high risk of breast cancer or has a history of breast cancer in her family will have an interest or be more motivated to do BSE practice. So this research is in line with the theory of the Health Belief Model.⁷

Relation between Perceived Severity of Breast Cancer and BSE Practices

The bivariate analysis results showed that the students who have not done the BSE practice well were mainly found in

female students who had a poorly perceived severity of breast cancer as much as 66.7% compared to those who had well-perceived severity much 38.8%. The chi-square test using Fisher's Exact with a significance of 5% shows a p-value of 0.001, so it can be concluded that there is a relation between the perceived severity of breast cancer and BSE on the practice of BSE.¹⁴

Many female students believe that breast cancer with late detection will not increase the risk of death; breast cancer cannot spread to other body tissues. Also, patients with late-stage breast cancer can still carry out their daily activities usually. So that female students who have a low perceived severity towards breast cancer tend to have BSE practices in the poor category. The same thing is mentioned in the Health Belief Model theory, which states that the perceived severity is one of the factors of a person's belief that can influence his behavior. A person's who thoughts about the seriousness of contracting a disease can have consequences for the sufferer (for example, pain, disability, to death) and also the possibility of social values (for example, from family living conditions, work, and social relation) can encourage someone does prevention. The perceived severity is also one of the perceptions that form a perceived threat that can make a person willing to change a behavior, including doing BSE. Person's assumption regarding the seriousness of breast cancer is a severe problem that can determine a person's behavior. If the person thinks that the disease is severe, then the preventive behavior can be increased. In other words, if someone thinks breast cancer is a severe problem, then that person tends to do BSE.^{7,15}

Relation of Perceived Benefit on BSE Practice with BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found in students with a category of poor perceived benefits of 61% compared to those who had good perceived benefits as many as 39.3%. The chi-square test using Fisher's Exact with a significance of 5% shows a p-value of

0.005. So it can be concluded that there is a relation between the perceived benefits of BSE practice and the practice of Breast Self-Examination (BSE). A significant relation between the perceived benefits of BSE and BSE practice.^{16,17}

However, although female teenagers may feel the high benefits of BSE, they do not necessarily want to do it because someone who thinks that the benefits derived from BSE practice are less than the barriers to BSE, then the person likely does not give a positive response to BSE practice.¹⁴

Compared with the Health Belief Model theory, who feels confident about the perceived benefits makes someone want to do preventive behavior, including BSE. In addition to the Health Belief Model theory, it also states that if an individual who has a firm belief in a vulnerability and also seriousness to a disease is not necessarily willing to take the recommended preventive action unless the person believes that the act reduces the threat or can provide benefits to the community. Existing disease.⁷

Relation between Perceived Barriers to BSE Practice and BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found in students with big perceived barriers of 58.3% compared to students with small perceived barriers of 37.1%. The chi-square test using Fisher's Exact with a significance of 5% shows a p-value of 0.007 (<0.05). It can be concluded that there is a relation between the variable perceived barriers to BSE practice and BSE practice. This study aligns with Oppi and Shinta research, which states a significant relation between perceived barriers and BSE practice.^{14,16}

From the results obtained in this study, female students who have big perceived barriers tend to practice BSE in the poor category and vice versa. This is in line with Inten, which states that the greater a person feels barriers in carrying out behavior, the less likely the behavior is to be successfully carried out.¹⁸

The Health Belief Model theory states that in carrying out a preventive behavior or corrective action against the disease. In

carrying out the practice of BSE, the obstacles that may occur can be in the form of limited facilities; the behavior has adverse side effects, the behavior makes it unpleasant and uncomfortable, or is time-consuming. In addition, barriers can also be feelings of fear of knowing she has the disease, fear of not performing the behavior properly, and lack of privacy to perform the behavior regularly.

According to the results of this study, female students who became students had considerable obstacles, mainly due to their perception that doing BSE would waste their time. In addition, there are significant obstacles due to the limited facilities of Islamic boarding schools. Female students do not have their own bedrooms in Islamic boarding schools, so they lack BSE privacy. So that female students who had not done the BSE practice well tend to have a big perceived barrier.

Relation between Information Media Exposure and BSE Practices

The bivariate analysis results showed that students who had not done the BSE practice well were mainly found to students less exposed to media information at 59.3% than those who were well exposed to media information at 40%. The chi-square test using Fisher's Exact with a significance of 5% shows a p-value of 0.013 (<0.05). It can be concluded that there is a relation between media exposure and BSE practices. This study aligns with Dinnia and Ari research, which stated a significant relation between exposure to information media and breast self-examination practice.^{19,20}

Information media exposure is one of the factors that influence the practice of BSE in adolescents. In this study, most of the information about BSE was obtained by female students obtained through social media. Meanwhile, information about BSE is received at least through billboards and other media such as newspapers and magazines. Students who are well exposed to information media tend to have good BSE practices compared to those less exposed to information media. This can happen because exposure to information media makes a person more likely to get more diverse information than the group

less exposed to media information related to breast cancer and BSE. In the Health Belief Model theory, a person will first consider the responses from the surrounding environment before finally deciding to perform a behavior. Information media exposure is one of the environmental factors that form cues to action.⁷

Notoatmodjo states that exposure to information media is one of the factors that can affect a person's knowledge to behave. Therefore, the information media is expected to change a person's behavior according to the message conveyed and must be able to provide appropriate information. This is reinforced by M. Chaffe's research cited in Ardianto and Erdinaya, which states that information media has an effect that can affect changes in feelings, behavior, and attitudes of communication.^{15,21}

Conclusion

Most of the BSE practices of female students at the Mijen Islamic boarding school are good. This is supported by having a history of breast cancer in the family and having good knowledge, perceived (susceptibility, severity, benefits, and barriers), and exposure to information media. The Islamic boarding school is expected to cooperate with the public health center to increase female students' knowledge, and provide facilities such as mirrors and reminder system to do BSE routinely.

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