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Related Factors to BSE Practices in Female Undergraduate Students Aged 18-24 Years: A Cross-Sectional Study in Tembalang Subdistrict, Semarang City

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Abstrak

Introduction: Shifts in disease patterns are a double burden on world health, such as breast cancer in young women < 40 years old with an Age-Standardized Incidence Rate reaching 8.2 or 100,000 world population. Breast Self Examination (BSE) has a meaningful role in the initial detection of breast cancer, so it can prevent cancer from delayed detection and increase women's life expectancy as a risk group. BSE practice should have been routinely implemented at the age of female students. This research aims to determine related factors to BSE practices in female undergraduate students aged 18-24 in Tembalang Subdistrict.

Methods: This observational analytic research uses a cross-sectional approach with female undergraduate students aged 18-24 years in Tembalang Subdistrict as a population. There were 200 samples with a 1:1 ratio of groups that do BSE and those that do not. This research used a questionnaire with online data collection via Google Forms, then imposed univariate and bivariate analysis with a chi-square test.

Results: Family history of breast cancer (ρ=0.001), information exposure (ρ=0.000), and awareness (ρ=0.007) were related to BSE practice in female undergraduate students aged 18-24 years.

Conclusion: It is essential to provide a valid source of information on social media as the most frequently used information exposure media about breast cancerand ways of initial detection, so every woman can have awareness, whether she has a familyhistory of breast cancer or not.

Keywords: Awareness, Breast Cancer, BSE, Family History, Information Exposure

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Introduction

Shifting the disease pattern from communicable to non-communicable diseases is a big task for the world of health, including Indonesia. An unhealthy lifestyle increases the number of deaths acquired by non-communicable diseases. Even today, 73% of deaths in Indonesia arecaused by non-communicable diseases, one of which is cancer.[1]

Based on Global Cancer Statistics 2020, breast cancer is the first type of cancer that causes the most deaths globally, followed by lung and prostate cancer. 24% ofthe 9.7 million cancer cases inwomen are breast cancer, and 15.5% of the 4.4 million cancer
deaths in women are caused by breast cancer. This data shows that breast cancer is a real threat to women.[2]

Currently, the shift in the age of people living with cancerputs breast cancer at risk of occurring in young adult women who are not yet 40. This fact is evidenced by the Age Standardized Incidence Rate(ASR) of breast cancer in women aged <40years, which is at 8.2 per 100,000 world population as of October 2022.[3] In Indonesia, breast cancer occupies the first position as the highly general type of cancer suffered by women with an incidence rate of 16.7% and a mortality rate of 11.0%.[4] Most cases of breast cancer in Indonesia appear in women aged over 35 years. However, the long journey of cancer allowsits growth to begin when women enter college age.[5]

An upsurge in the incidence of breast cancer also occurred in Semarang City in 2018, reaching 3,590 cases, whereas in 2017, there were 2,498 cases.[6] But unfortunately, a particular cancer hospital has not facilitated the referral hospital in Semarang City. Thus, early detection is considered the most effective alternative to suppress the incidence of breast cancer detected at a late phase.

Breast cancer identified at a late phase will reduce the life expectancy of sufferers.In addition, if viewed from an economic aspect, the charge of treatment and care for breast cancer at a late stage will require relatively high funds. This fact is indeed a problemthat needs to be addressed. One thing thateach individual can do to knock offthe incidence of breast cancer is to apply BSE. Even though BSE does not reduce the prevalence of breast cancer in Indonesia, it can at least upsurge the accuracy of handling and treating breast cancer as initially as possible. In addition, BSE will also reduce mortality caused by breast cancer because the life expectancy of women who routinely perform BSE will be higher when compared to women who do not do BSE.[5] BSE is an initial disclosure of breast cancer that canbe done independently at any time without being limited by time, place and cost.

Therefore, BSE is the most recommended initial detection of breast cancer.[7]The application of BSE is routinely proven to be adequate to knock off around 50% of the casesof breast cancer in women, so Kementerain Kesehatan Republik Indonesia (KemenkesRI) recommends BSE routinely seven days after menstruation every month for allIndonesian women.[8,9]

BSE should beroutinely carried out at the age of female students (18-24 years). At that age, many carcinogenic exposures in women are caused by exposure to the hormone estrogen every timemenstruate, unhealthy lifestyle, and increased stress. This fact will upsurge the riskof developing cancer due to alterations in the BRCA1 and BRCA2 genesat an early age.[10,11]

Tembalang Subdistrict is one of the subdistricts in Semarang City, which has a dense population of student age. This fact is because this area is a campus area. Several campuses in Tembalang Subdistrict include Diponegoro University, University of Muhamadiyah Semarang, Pandanaran University, Politeknik Negeri Semarang (Polines), and Politeknik Kesehatan Kementerian Kesehatan (Poltekkes) Semarang. Lifestyle changes in female students, such as unhealthy eating patterns, lack of physical activity, and increased stress, will increase the risk of breast cancer. Besides that, as an educated group with easy access to information, it should increase early awareness about breast cancer in female students. Researchers made Tembalang Subdistrict the location and female students as research targets.

This research aimed to determine the relationship between family history of breast cancer, information exposure, and awareness of BSE practices in female students aged 18-24 in Tembalang Subdistrict.

Methods

A cross-sectional path was used in this observational analytic study. Data collection is carried out at one time. All female students aged 18-24 in the Tembalang Subdistrict were used as the study population. The minimum sample size is 200, with a detailed comparison of 1:1 between the groups that do BSE and those that do not. The sample was obtained from the calculation of 2 proportions from Lemeshow. Respondents were retrieved by applying a simple random sampling technique by distributing questionnaires online using the Google Form (https://bit.ly/Faktor2SADARI). The number of questions on the history of breast cancer

variable is two, the information exposure variable is two, and the awareness level variable is five. Family history of breast cancer, information exposure, and level of awareness are independent variables associated with the dependent variable, the practice of BSE. Data were analyzed applying univariate analysis, which showed the distribution of frequencies, and the chi-square test (a = 0.05) in bivariate analysis, which present the relation between independent and dependent variable. This analytical study has accepted ethical clearance numbered 076/EA/KEPK-FKM/2023.

Results

This research was conducted on female students aged 18-24 in Tembalang Subdistrict. Table 1 shows the frequency distribution of family history of breast cancer, information exposure, and respondents' awareness level. Table 1 explains that the mass of respondents did not have a family history of breast cancer (80.5%), were exposed to information about breast cancer and how todetect it early with BSE (88.0%), and had ahigh level of awareness (73.0%).

The independent variable of this research is associated with the dependent variable, which is calculated statistically by applying thechi-square test. Table 2 is the outcome of a bivariate analysis that links family historyof breast cancer, information exposure, and level of awareness with BSE practices in female students aged 18-24 years in Tembalang Subdistrict.

Table 2 shows that female students aged 18-24 years in Tembalang Subdistrict who have practiced BSE have a more significant proportion in the group with a family historyof breast cancer (74.4%), get information regarding breast cancer and its prevention with BSE (55, 1%), and had a high level of awareness (56.2%). Entrenched the outcome of statistical calculations applying the chi-square test, which links the independent variable with the dependent variable, it shows ρ value for family historyof breast cancer (ρ = 0.001), information exposure (ρ = 0.000) and level of awareness (ρ = 0.007), where the value ofρ < 0.05, and makes H0 dropped and Haapproved, which means there is a correlation between family history of breastcancer, information exposure and level of awareness with BSE practices in female students aged 18-24 years in TembalangSubdistrict.

Table 1. Frequency Distribution of Research Variables

No	Variables	Category	Frequency	Percentage
1	Family history of breast cancer	Have no family history of breast cancer	161	80,5%
		Have a family history of breast cancer	39	19,5%
2	Information exposure	Never been exposed information	24	12,0%
		Have been exposed to the information	176	88,0%
3	Level of awareness	Low awareness	54	27,0%
		High awareness	146	73,0%

Table 2. Analysis of the Correlation Between Family History of Breast Cancer, Information Exposure and Level of Awareness with BSE Practices in Female Students Aged 18-24 Years in Tembalang Subdistrict

Variables	Category	BSE Practice				Total		ρ -value
		Not Doing Practice		Doing Practice				
		f	%	f	%	f	%	
Family History of Breast Cancer	Have no family hostory of breast cancer	90	55,9	71	44,1	161	100,0	0,001
	Have a family history of breast cancer	10	25,6	29	74,4	39	100,0	
Information Exposure	Never been exposed to the information	21	87,5	3	12,5	24	100,0	0,000
	Have been exposed to the information	79	44,9	97	55,1	176	100,0	
Level of Awareness	Low awareness	36	66,7	18	33,3	54	100,0	0,007
	High awareness	64	43,8	82	56,2	146	100,0	

Discussion

Family History of Breast Cancer

The results showed that only 39 (19.5%) respondents had a family history of breast cancer, while the leftovers did not. The results of bivariate analysis present that having a family history of breast cancer made the respondents tend to apply BSE in their lives. The outcome of the chi-square test presents ρ-value = 0.001 with *a* = 0.05, so the ρ-value <*a*. This fact makes a correlation between a family history of breast cancer and the practice of BSE in female students aged 18-24 in Tembalang Subdistrict.

Based on the cross-tabulation of the bivariate analysis, it can be seen that the portion of respondents who had practiced BSE was more significant to those with a family history (74.4%) compared to respondents without a family history of breast cancer (44.1%),respondents with a history of breast cancer in their family feel that they are alsoat higher exposure to developing breast cancer. Hence, they tend to look for and take preventive measures to avoid having a similar experience with their family members.

The outcome of the study that has been imposed is matched with research by Nisa et al. in 2022, which shows a correlation between a family history of breast cancer and the practice of BSE. Thisfact was proven by the outcome of the chi-square calculations on bivariate analysis, which present a ρ-value = 0,001. The study also presents that individuals with a family history of breast cancer were 7.05 times more inclined to practice BSE as an effort to prevent breast cancer.[12] This research allegation is backed up by research organized by Rohani Siregar in 2019, which declared a significantcorrelation between a family history of breast cancer and BSE practices asindicated by a ρ-value = 0.001. Entrenched in the study analysis, it is also known that individuals who do not have a family historyof breast cancer are 2.79 times more inclined not to practice BSE when compared to individuals who have it.[13] Getu MA et al. also support the theory that a family history of cancer strongly relates to one's BSE practice.[14]

Individuals who have a family history of breast cancer tend to have a higher exposure to developing breast cancerwhen compared to individuals who do not have it.[15] The

Health Belief Model theory regarding the practice of BSE explains thathaving a family history of breast cancer willincrease feelings of vulnerability in individuals, thereby creating a sense that they are a high-exposure group for breast cancer so that motivation will be formed in practicing BSE as the first step in prevention. In addition, having a family history of breast cancer allows for the transfer of information from families of sufferers regarding cancer symptoms and encouragement to take preventive measures with initial disclosure with BSE. That way, individuals who have a family history of breast cancer will tend to practice BSE.[16]

Information Exposure

The research that has been conducted shows that 88% of respondents have been exposed to information about breast cancer and how to prevent it with BSE. Respondents' most widely received source of information exposure is through social media (29.5%), such as Instagram, Twitter, Facebook, TikTok, and others, followed by formal education (23.6%), such as lectures and schools.

This analytic observational study indicates that there is an essential correlation between information exposure and BSE practices in female students aged 18-24 years in Tembalang Subdistrict with evidence obtained from the outcome of the chi-square calculation, which displays a ρ-value = 0.000 with a = 0.05 so that the ρ value < a. Entrenched the outcome of cross-tabulation, it was discovered that the respondents who had been aware of it had a more significant proportion of respondents who had been exposed to information (55.1%) than respondents who had never been exposed to information (12.5%). This research is matched with research organized by Dannia et al. in 2016, which showed an essential correlation between exposure to information media and BSE practices in young women at the Al-Ishlah Tembalang Islamic boarding school with a ρ-value = 0.001.17 This is also backed up by research organized by Windy et al. in 2022 which shows that respondents who obtain sources of information about BSE will tend to be better at practicing BSE. This statement is proven by ρ value = 0.011, which implies an essential correlation between sources of information and BSE practices. It was also stated in the study that respondents who obtained information sources 5.455 times tended to practice BSE.[18]

Information sources are essential and closely related to one's knowledge. The more often a person is exposed to information about a matter, the person's knowledge will tend to be higher when compared to someone who has never or is rarely exposed to information about that matter. It is also related to a person's awareness to do or not do something according to the information he gets from various sources of information.[19]

Social media like Instagram, Facebook, Twitter, TikTok, and others are the sources of exposure most mentioned by 88% of respondents who have been exposed to information concerning breast cancer and how to prevent it with BSE. This is because disseminating information through social media is easy and can be reached by all groups.[20] In addition, formal education, such as lectures and schools, willbecome the next source of exposure after social media. This is because the respondents in this study were female students aged 18-24 years who were and were still undergoing college, so most of them received information about breast cancer and how to prevent it through the learning process. In addition, 18-24-year-olds are Generation Z, who are very commonand often rely on social media as a source of information.[21]

Sources of information that rarely exposed respondents to breast cancer and how to prevent it with BSE were product advertisements (1.6%) and public places (2.8%). Regarding this matter, follow-up is needed in developing and expanding information about breast cancerand how to prevent it with BSE through intensifying information on product advertisements and public places. This exposure source can increase knowledge about breast cancer and how to prevent it with BSE if it can be used optimally. In addition, maximizing product advertisements and public places supported by other media such as television/radio will reach all groups, students, andnon-students, without any age limit.

Level of Awareness

The results showed that 146 (73.0%) respondents had a high value of awareness, while 54 (27.0%) respondents had a low level of awareness. The outcome of the bivariate analysis shows that a person's high level of awareness tends to practice BSE as a form of breast cancer prevention. The chi-square test that has been carried out shows a correlation between the level of awareness with the practice of BSE in female undergraduate students aged 18- 24 years in Tembalang Subdistrict. This is evidenced by the ρ-value = 0.007 with a =0.05 so that the ρ value < a.

Based on the cross-tabulation of the bivariate analysis, it can be visible that the portion of respondents who had practiced BSE was more prominent in the group of respondentswith a high level of awareness (56.2%) compared to the group of respondents witha low level of awareness (33.3%). This shows that the level of awareness plays a crucial role in making someone do or not do an action. A significant correlationbetween the level of awareness and the practice of BSE shows that the higher the level of awareness in a person, the better BSEpractice will be.

The proportion of respondents who answered the statements used by researchers to measure the level of awareness represented more than 95.0% of respondents who had positive awareness. This is evidence that most respondents feel they need to make various efforts to keep all body members healthy. One of the efforts that can be made to maintain breast health in women is to practice BSE regularly every month or a week after menstruation.

Awareness can be interpreted as someone's early consciousness that makes them take or not take sides in contributing to something. The existence of high awareness about breast cancer will make someone willing to involve themselves in the practice of Breast Self-examination or BSE. The high level of self-awareness makes a person's sense of involvement increasingly appear so that a person is motivated to do a breast self-examination in order to bring attention to himself in the present and the future.[22]

The limitation of this research lies in online data collection using the Google form. The data's validity and reliability were measured by taking 30 samples from the Banyumanik subdistrict, which has the same characteristics as the study area.

The reason for using Google Forms as a data collection medium is the ease and practicality combined with the condition of the research respondents who are familiar with using Google Forms during college. However, using the Google form makes it difficult for researchers to retrieve information from respondents in more detail and depth, so the data collected is limited to questions or written statements.

Family history of breast cancer, information exposure, and level of awareness strongly relate to the practice of BSE. Even so, several variables may contribute to the practice of BSE, including age, knowledge level, susceptibility, and fear.[23,24,25]

Conclusion

The closure that can be attracted from this research study is there is an important correlation between family history of breast cancer, exposure to information, and the level of awareness of the practice of BSE in female students aged 18-24 years in Tembalang Subdistrict. Even so, it is still necessary to intensify the dissemination of information through media other than social media, such as seminars, product advertisements, public places, and health workers. With this, it is expected that information about breast cancer and how to detect it early with BSE can be disseminated massively.

Undergraduate students are expected to be wiser in filtering the sources of information obtained about breast cancer and how to prevent it with BSE so that the information obtained can be proven correct. That way, female students will have good knowledge about causative factors of breast cancer, one of which is a history of breast cancer in the family, so the excellent self-awareness will grow to practice BSE as a step for initial detection of breast cancer.

Ethics approval

This research study already has an ethicallicense issued by the Faculty of Public

Health, Diponegoro University, Semarang. The ethical approval is numbered 076/EA/KEPK-FKM/2023.

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Not applicable.

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Author Contribution

AA determines research methods, creates and develops research instruments, collects research data, conducts analysis and interpretation of data, and conducts discussions during the process of research reports and writing articles. DS, AU, and M ensure the quality and correctness of analysis, interpretation, and writing of reports and articles.

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