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THE ABILITY OF WOMEN OF CHILDBEARING AGE TO RECOGNIZE BREAST CANCER RISK FACTORS

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ABSTRACT
Breast cancer is a malignancy caused by the abnormal growth and spread of cells. It develops within the breast lobules, ducts, adipose tissue, or connective tissue. Globally, this disease ranks as the second leading cause of death. Objective: This study aims to analyze the ability of women of reproductive age to recognize breast cancer risk factors. A descriptive research design was employed to identify the level of risk factor recognition among women of reproductive age in the working area of Puskesmas PB 2 Selayang. The study population comprised all women of reproductive age aged 15-49 years. A total of 100 respondents were selected using proportional random sampling, ensuring that the number of subjects drawn from each area was proportional to the population size of that area. Data were collected from April to July 2025 using a structured questionnaire administered through Google Forms, covering demographic characteristics and knowledge of breast cancer risk factors. Data collection was conducted through home visits assisted by trained enumerators. Data were analyzed using univariate analysis and presented in frequency and percentage distributions. The results indicated that the risk factors most recognized by respondents were the definition of breast cancer (74.1%), alcohol consumption habits (67%), smoking habits (71.6%), high-sugar and preservative-laden foods (75%), and breast self-examination (75%). Conversely, unrecognized risk factors included post-menopausal obesity (16.5%), early menarche (25.6%), genetic factors (56%), reproductive factors (39.4%), nulliparity (never having given birth) (52.8%), and late menopause (>50 years) (34.9%). These results suggest that a significant number of respondents lack understanding of hormonal and reproductive factors, highlighting the need for targeted education on these issues.

Keywords: ability; risk factors; women of reproductive age

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INTRODUCTION

Breast cancer is the leading cause of death among women globally, with over 2.3 million new cases annually (WHO, 2023). In Indonesia, breast cancer ranks first in cancer prevalence among women, with more than 65% of cases detected at an advanced stage (Kemenkes RI, 2023). This situation highlights the critical importance of understanding breast cancer risk factors, particularly among Women of Reproductive Age (WRA) aged 15-49 years, a group considered vulnerable due to various biological and reproductive factors. Women of reproductive age (15–49 years) constitute a group susceptible to breast cancer due to hormonal, reproductive, and lifestyle factors. Their ability to recognize breast cancer risk factors is vital for prevention and early detection. Major risk factors include family history, genetic mutations (BRCA1/BRCA2), early menarche, late menopause, nulliparity, use of hormonal contraceptives, obesity, alcohol consumption, and lack of physical activity.

Research over the past five years indicates variations in the level of knowledge regarding breast cancer risk factors among women of reproductive age. A study by Afiyanti et al. (2020) in Indonesia found that only 42% of women of reproductive age possessed good knowledge of breast cancer risk factors, while the majority still had limited understanding. One contributing factor is the low level of knowledge among women of reproductive age (15–49 years) concerning specific risk factors, such as genetics (BRCA1/BRCA2), early menarche, obesity, and lifestyle (Alkhasawneh et al., 2021). Similarly, research by Sharma et al. (2021) in India demonstrated that education levels, access to information, and family history significantly influence women's awareness of breast cancer risks.

Conversely, studies in developed countries such as the United States (Smith et al., 2022) report that community-based education programs and social media significantly improve the understanding of breast cancer risk factors among women of reproductive age. However, in developing countries, barriers such as lack of access to information, stigma, and low health prioritization remain significant challenges. The high incidence of breast cancer is attributed to the fact that the majority of women of reproductive age do not understand, know, or realize the importance of early detection. Furthermore, they are unable to recognize breast cancer risk factors; consequently, most breast cancer cases are diagnosed at an advanced stage, thereby increasing mortality and morbidity rates among women.

The inability of women of reproductive age to recognize breast cancer risk factors is influenced by several determinants, including low levels of education and health literacy (Afiyanti et al., 2020); a lack of understanding of medical terminology and risk interpretation (Sharma et al., 2021); insufficient information from health professionals (Smith et al., 2022); limited access to the internet or health educational media in rural areas (Ndeijo et al., 2021); the presence of cultural stigma viewing breast cancer as a shameful disease (Aziza & Cohen, 2020); low economic status, which leads to prioritizing economic needs over health screenings (Kayode et al., 2023); the perception that breast cancer only affects older women (Ruddy et al., 2020); and fear or denial regarding risk status, leading to the avoidance of information (Lebel et al., 2021). Based on these findings, efforts are required to enhance the understanding of breast cancer risk factors among women of reproductive age through effective and accessible health education interventions. This study aims to analyze in depth the ability of women of reproductive age to recognize breast cancer risk factors, as well as the factors influencing this ability based on recent literature.

METHOD

Research Design and Population

The research design employed in this study was descriptive, aimed at identifying the ability of Women of Reproductive Age (WRA) regarding the early detection of breast cancer. The population in this study consisted of women of reproductive age (15 to 49 years) residing in the working area of Puskesmas (Public Health Center) PB 2 Selayang, Medan. The highest number of WRA was located in Pasar 1 Tanjung Sari, totaling 3,975 individuals (Data from Puskesmas PB 2 Selayang). The sampling technique utilized was proportional random sampling, where subjects were selected from each stratum or area in proportion to the population size of that specific area. This resulted in a total sample size of 100 women of reproductive age distributed across the respective areas. The study was conducted in the working area of Puskesmas PB 2 Selayang, with data collection taking place from April to July 2025.

This study was conducted after obtaining ethical clearance from the Ethics Commission of the Faculty of Nursing, Universitas Syiah Kuala (Ethical Approval Number: 113013220223), adhering to the ethical principles of The Belmont Report, which consists of Beneficence, Respect for Human Dignity, and Justice. The study also received permission from the Head of Puskesmas PB 2 Selayang Medan. Ethical considerations in this research included Informed Consent, Anonymity, Confidentiality, and Beneficence. Data collection was performed using a Google Form instrument. The questions covered demographic data, including name (initials), age, last education, marital status, religion, occupation, and history of receiving information about breast cancer. The subsequent section of the instrument assessed the ability of women of reproductive age to recognize breast cancer risk factors, covering: the definition of breast cancer, risk factors, genetic factors, age of menarche, age of menopause, contraceptive use, obesity, alcohol consumption habits, smoking habits, fruit and vegetable consumption habits, and consumption of grilled foods or foods containing flavor enhancers, sweeteners, and preservatives.

Prior to data collection, the researcher submitted a request for research permission to the Regional Research and Innovation Agency (Badan Riset dan Inovasi Daerah) of North Sumatra, followed by a permit request to the Medan City Health Office (Dinas Kesehatan Kota Medan). After obtaining permission from the Health Office, the researcher presented the permit to the Head of Puskesmas PB 2 Selayang Medan. Data collection was conducted by visiting respondents' homes in the working area of Puskesmas PB 2 Selayang, assisted by enumerators. The researcher selected respondents based on predetermined criteria and provided an explanation sheet. If the respondent agreed, they were asked to sign an informed consent form and proceed to answer all questions via the Google Form, which took approximately 60 minutes. After the respondent completed the questionnaire, the researcher verified the completeness of the data; if any items were missed, the researcher explained the question to ensure all items were answered.

Once all data were collected, the researcher processed the data using a computerized system through the following stages: 1) Editing, where the researcher re-checked the accuracy of data obtained from the questionnaires; 2) Coding, where the researcher converted words or sentences into numbers or codes and created a codebook to facilitate variable identification; 3) Data Entry, where the researcher input the coded responses into a computer database; and 4) Cleaning, where the researcher re-checked for potential coding errors or incompleteness and made necessary corrections. The data analysis was conducted using univariate analysis, presenting the data in frequency distribution tables and percentages.

RESULT

The demographic characteristics of the respondents in this study included age, education, ethnicity, occupation, religion, and history of receiving information regarding breast cancer. The results indicated that the majority of respondents were in the late adolescent category (35 respondents, 35%), possessed a Senior High School education (38 respondents, 38%), were of Javanese ethnicity (45 respondents, 45%), worked as housewives (53 respondents, 53%), were Muslim (90 respondents, 90%), and had never received information regarding breast cancer (66 respondents, 66%).

Based on the responses regarding the ability of women of reproductive age to recognize risk factors, the factors most widely recognized by respondents were the definition of breast cancer (74.1%), alcohol consumption habits (67%), smoking habits (71.6%), foods high in sugar and preservatives (75%), and breast self-examination (75%). Conversely, risk factors that were less recognized or unrecognized included post-menopausal obesity (correctly identified by 16.5%), early menarche (25.6%), genetic factors (56%), reproductive factors (39.4%), nulliparity (women who have never given birth) (52.8%), and late menopause above the age of 50 (34.9%). The data regarding respondents' answers is presented in Table 2.

Table 1.
Frequency Distribution of Characteristics of Women of Reproductive Age Regarding the Ability to Recognize Breast Cancer Risk Factors (n=100)

Characteristics	f	%
Age		
Early Adolescent	2	2
Late Adolescent	35	35
Early Adult	33	33
Late Adult	22	22
Early Elderly	8	8
Education		
No Formal Education	1	1
Elementary School	17	17
Junior High School	17	17
Senior High School	38	38
University	27	27
Ethnicity		
Mandailing	14	14
Javanese	45	45
Karo	3	3
Batak	13	13
Minang	4	4
Malay	21	21
Occupation		
Civil Servant	3	3
Entrepreneur	21	21
Farmer	2	2
Housewife	53	53
Student	21	21
Religion		
Muslim	90	90
Protentant	5	5
Catholic	5	5
Received Information on Breast Cancer		
Yes	34	34
Never	66	66
Source of Information		
Internet/social media	16	16
Television	3	3
Neighbour/friends	7	7
Books	4	4
Health Workers	4	4

Table 2.
Frequency Distribution of Responses of Women of Reproductive Age Regarding the Ability to Recognize Breast Cancer Risk Factors (n=100)

No	Questions	Yes (%)	Don't Know (%)	No (%)
1	Breast cancer is a disease characterized by uncontrolled cell growth in the breast.	74,1	22,2	3,7
2	Hereditary factors increase the risk of breast cancer.	56,0	20,2	23,8
3	Women who have never given birth are at a higher risk.	39,4	40,4	20,2
4	First menstruation (menarche) at an age of less than 12 years increases the risk.	25,6	45,0	29,4
5	Menopause at an age of greater than 55 years is considered a risk factor.	34,9	38,5	26,6
6	Long-term use of oral contraceptives (birth control pills) increases the risk.	49,5	33,0	17,5
7	Post-menopausal obesity increases the risk of breast cancer.	16,5	40,4	43,1
8	Lack of physical activity (exercise) is a risk factor.	44,0	26,6	17,4
9	Excessive alcohol consumption increases the risk.	67,0	24,8	8,2
10	Smoking increases the risk of breast cancer.	71,6	24,8	3,6
11	Exposure to chest radiation (repeated X-rays) triggers breast cancer.	54,1	38,5	7,4
12	Breastfeeding reduces the risk of breast cancer.	52,8	22,2	25,0
13	Having a first child after the age of 30 increases the risk.	27,8	49,1	23,1
14	A family history of reproductive system cancers increases the risk.	46,3	38,0	15,7
15	Low consumption of fruits and vegetables is a risk factor for breast cancer.	59,8	21,5	18,7
16	Foods high in sugar, preservatives, and artificial sweeteners increase the risk.	75,0	19,4	5,6
17	Charcoal-grilled food increases the risk.	42,6	38,9	18,5
18	The use of contraceptives (oral contraceptive pills) increases the risk.	51,4	33,9	14,7
19	Food packaged in Styrofoam or plastic increases the risk.	67,0	23,9	9,1
20	Regular Breast Self-Examination (BSE) reduces the risk.	75,2	17,4	7,1
21	Mammography is recommended starting at the age of 40.	42,5	46,2	11,3

DISCUSSION

Based on the respondents' responses regarding breast cancer risk factors, the majority (74.1%) correctly identified breast cancer as a disease characterized by uncontrolled cell growth in the breast. However, 22.2% remained unaware, indicating a need for further education. The most recognized risk factors were alcohol consumption (67%) and smoking (71.6%), which the majority considered primary risks. Similarly, foods high in sugar/preservatives (75%) and Breast Self-Examination (BSE) (75.2%) were among the best-understood concepts. In contrast, the least recognized risk factors included post-menopausal obesity (16.5% correct) and early menarche (<12 years, 25.6% correct). Regarding genetic and reproductive factors, 56% answered correctly regarding genetics; 39.4% knew that nulliparity (never having given birth) carries a higher risk; and 52.8% understood that breastfeeding could lower the risk. However, only 25.6% understood that menstruation under the age of 12 increases risk, and only 34.9% knew that menopause after the age of 55 is a risk factor. These results suggest that a significant number of respondents lack an understanding of hormonal and reproductive factors, highlighting the necessity for specific education on these topics.

According to research by Fernanda (2021), hormonal factors such as the duration of estrogen exposure (due to early menarche or late menopause) are primary triggers for breast cancer cell proliferation; yet, education regarding this mechanism remains minimal. A case-control study in Gorontalo (2024) also confirmed that a first pregnancy over the age of 30 and the use of hormonal contraceptives for ≥10 years increase risk, but only 27.8% of respondents were aware of this. Regarding lifestyle and environmental factors, 49.5% knew that long-term usage increases risk, while 33% remained unaware. Furthermore, 44% realized that a lack of physical exercise is risky, whereas 26.6% did not. In terms of dietary habits, 75% understood that foods high in sugar/preservatives are harmful. Additionally, 42.6% knew that food grilled over charcoal poses a risk, yet 38.9% did not know, and 67% believed that food in Styrofoam/plastic is dangerous. These responses indicate that respondents are more aware of dietary risks than hormonal or obesity-related

factors. Nevertheless, a lack of knowledge persists regarding specific factors, such as the risk associated with grilled foods.

Concerning screening and early detection, 75.2% knew that breast self-examination (BSE) aids in early detection. However, 46.2% were unaware that women aged 40 require mammogram screenings. It can be concluded that while self-examination is relatively well-known, awareness regarding mammography remains low, indicating the need for more intensive early detection campaigns. The Health Literacy Theory (Nutbeam, 2000) explains that the ability to comprehend health information is influenced by formal education levels (Sari et al., 2022, noted that 68% of respondents with low education did not recognize genetic risk factors), access to valid information sources (Andriani, 2021), and language proficiency regarding medical terminology. Individual capability in health problem recognition serves as a fundamental foundation for disease prevention and health promotion. This concept encompasses the knowledge, perceptions, and skills that enable an individual to identify symptoms, risk factors, and signs of health disorders.

According to Nutbeam (2019), the ability to recognize health problems is a component of health literacy, which includes the capacity to access health information, understand risk factors and symptoms, and apply knowledge to take preventive action. Understanding risk factors can heighten vigilance and encourage early detection. Several health theories elucidate the relationship between risk factor knowledge and preventive behavior. The Health Belief Model (HBM) posits that an individual's perception of disease vulnerability and severity influences preventive action (Rosenstock, 1974). Meanwhile, the Theory of Planned Behavior (TPB) emphasizes the role of subjective norms and behavioral control in shaping the intention to perform early detection (Ajzen, 1991).

CONCLUSION

From these results, it can be interpreted that a significant proportion of respondents still lack an understanding of hormonal and reproductive factors, highlighting the need for targeted education on these aspects. Therefore, further research is necessary to implement more effective educational interventions including the utilization of digital technology and the active role of healthcare professionals to enhance the ability of Women of Reproductive Age (WRA) to recognize breast cancer risk factors.

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