Knowledge Of Breast Cancer Prevention And 'Cerdik' Behavior In Adult Women In Tlogomas Malang

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ARTICLE INFO	ABSTRACT
  Corresponding author e-mail ronasari@unitri.ac.id 	*The incidence of breast cancer continues to rise and constitutes a significant global health issue, including in Indonesia. Early detection of breast cancer, although seemingly simple, is often neglected by women. This study aims to assess knowledge regarding breast cancer prevention and its correlation with the "CERDIK" behavior among adults. The research design is non-experimental with a cross-sectional approach. The population comprises all adults in the Tlogomas area, with a sample of 81 individuals selected through accidental sampling. The independent variable is knowledge of breast cancer prevention, while the dependent variable is the "CERDIK" behavior. The instrument used was a questionnaire, which had undergone validity and reliability testing by the researchers. Data analysis was performed using the Fisher exact test. The results indicate that nearly all respondents (86.2%) possess insufficient knowledge of breast cancer prevention; the majority (55.6%) exhibit moderate "CERDIK" behavior, and there is no significant correlation between knowledge of breast cancer prevention and the "CERDIK" behavior among adults in Tlogomas (p-value 0.511). It is recommended that future research conduct health promotion activities regarding breast cancer prevention and examine attitudes and determinant factors related to the "CERDIK" behavior.*

1. INTRODUCTION

Cancer is recognized as the second largest cause of mortality globally (Riani & Ambarwati, 2021)(Chimed et all., 2017). The Indonesian Ministry of Health (2018) reported that breast cancer remains the most prevalent cancer among women, with an incidence rate of 1.4 per 1,000 people in 2013, increasing to 1.79 per 1,000 in 2018. Breast cancer predominantly affects women at a young age, with 8 to 10 cases occurring in this demographic (Partini et al., 2018)(Sipayung, I. D., Lumbanraja, S., Fitria, A., Silaen, M., & Sibero, 2022). Despite its malignancy and high mortality rate, early detection and regular treatment significantly enhance the chances of recovery from breast cancer (Agustin, I., Kumalasari, I., & Jaya, 2021)(Sudewo, 2012). However, early detection is often neglected, leading to delayed diagnoses and treatments (Pelima, T. C., & Adi, 2021)(Pruitt, L., Mumuni, T., Raikhel, E., Ademola, A., Ogundiran, T., Adenipekun, A., & Olopade, 2015).

Adolescence and early adulthood represent critical periods for parents to instill healthy behaviors, including self-examination of the breasts (SADARI) and seeking regular professional breast examinations (Nisa, H., Marliana, S., Murti, T., & Azzahra, 2022). It is essential to promote the development of habits such as routine health checks, avoiding tobacco smoke, engaging in regular physical activity, maintaining a balanced diet, and managing stress effectively as part of CERDIK. Cancer is often linked to unhealthy lifestyles, and various studies indicate that many adolescents engage in behaviors that increase their cancer risk, including poor dietary habits and unhealthy behaviors (Riawati, 2019). The consumption of foods high in preservatives or those that are grilled or roasted is notably higher among younger age groups (Riawati, 2019)(de Rezende, 2019). This finding aligns with other research suggesting that poor dietary habits contribute to a small proportion of respondents suffering from acute gastritis and the majority from chronic gastritis, with a clear association between diet and the onset of gastritis (Mahaji Putri et al., 2010).

CERDIK behavior has also been proven to reduce hypertension in the elderly (Mahaji et al., 2023), so researchers are optimistic that its implementation among teenagers and young adults can also reduce the spread of breast cancer. Parental involvement is very important in shaping CERDIK behavior, in addition to adolescent self-efficacy and parenting style (Devi, HM., Putri, 2021). This study aims to determine the relationship between breast cancer knowledge and CERDIK behavior among adults in Tlogomas.

2. METHODS

2.1 Research design
This study is non-experimental research with a cross-sectional approach.

2.2 Setting and Sample/Participants
The population in this study consists of all adult women residing in the Tlogomas area of Malang, with a sample of 81 individuals selected through accidental sampling.

2.3 Measurement and Data Collection

The instrument used in this study was a questionnaire, consisting of 15 questions designed to assess knowledge of breast cancer prevention and 18 questions to evaluate CERDIK behavior. The instrument underwent validity and reliability testing, with each question achieving a validity score of < 0.05 and a reliability score of 0.870 for the knowledge questionnaire; the CERDIK behavior questionnaire yielded a validity score of < 0.05 and a reliability score of 0.616. Data collection was conducted by distributing questionnaires on breast cancer prevention knowledge and CERDIK behavior.

2.5 Data analysis

Data analysis was conducted using the Fisher exact test with SPSS 16 for Windows. The decision-making criterion was based on a 95% confidence level, or $\alpha = 0.05$. If the p-value is less than 0.05, then the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted.

2.7 Ethical considerations

This study received ethical approval from the Ethics Committee of Universitas Muhammadiyah Lamongan, with approval number 244/EC/KEPK-S2/07/2024.

3. RESULTS

Table 1. the Characteristics of participants

Variables	f	%
Nutritional status		
Underweight	39	48.1
Normal	37	45.7
Overweight	5	6.2
Perform breasts self-examination		
Yes	8	9.9
No	73	90.1
Weekly vegetables consumption		
Everyday	50	61.7
3-4x/week	19	23.5
2-3x/ week	6	7.4
1-2x/week	6	7.4
Drinking water consumption		
Less than 10 cup/day	72	88.9
More than 10 cup/day	9	11.1
Workout habit		
None	6	7.4
1-2x/week	55	67.9
2-3x/week	19	23.5
3-4x/week	1	1.2

Fried food consumption		
None	1	1.2
Occasionally	49	60.5
Frequently	31	38.3
Duration of nighttime sleep		
6-8 hours	56	69.1
1-2 hours	9	11.1
3-4 hours	16	19.8
Having confidant/close friend		
Yes	71	87.7
No	10	12.3
Total	81	100

Based on Table 1, it is observed that a small proportion of adults have a nutritional status categorized as underweight (48.1%); nearly all respondents do not perform breast self-examinations (90.1%); the majority of respondents consume vegetables daily throughout the week (61.7%); almost all respondents drink less than 10 glasses of water per day; most respondents engage in physical exercise 1-2 times per week (67.9%); a majority of respondents occasionally consume fried foods (60.5%); most respondents sleep for 6-8 hours per night (69.1%); and nearly all respondents have a confidant (87.2%).

Table 2. Distribution frequency based on participants' knowledge about breast cancer prevention and CERDIK behavior among adults in Tlogomas, Malang

Variables	F	%
Knowledge		
Less	70	86.4
Moderate	11	13.6
Good	0	0
CERDIK Behavior		
Less	33	40.7
Moderate	45	55.6
Good	3	3.7
Combination of CERDIK behavior		
Less	33	40.7
Moderate + Good	48	59.3
Total	81	100

Based on Table 2, it is observed that nearly all respondents have insufficient knowledge of breast cancer prevention (86.2%), while the majority of respondents exhibit adequate CERDIK behavior (55.6%). According to Table 3, the 2x3 contingency table does not meet the criteria for performing a Chi-square or Fisher exact test. Additionally, there are three cells

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with expected counts of less than five. Therefore, it is necessary to consolidate the cells into a 2x2 table (Table 4).

Table 3. Crosstabulation between the Knowledge of Breast Cancer prevention within CERDIK behavior among adults in Tlogomas

Knowledge of Breast Cancer Prevention	CERDIK behavior						Total	
	Less		Moderate		Good		f	%
	f	%	f	%	f	%		
Less	30	28.5	39	38.9	1	2.6	70	86.4
Moderate	3	4.5	6	6.1	2	4	11	13.5
Total	33	33	45	45	3	3	81	100

Tabel 4. Crosstabulation on cell consolidation between the Knowledge of Breast Cancer prevention within CERDIK behavior among adults in Tlogomas

Knowledge of Breast Cancer Prevention	CERDIK Behavior				Total		P value
	Less		Moderate + Good		f	%	The fisher exact test
	F	%	f	%			
Less	30	28.5	40	41.5	70	86.4	0,511
Moderate	3	4.5	8	6.5	11	13.5	
Total	33	33	48	48	81	100	

Based on Table 4, it is observed that respondents with insufficient knowledge are associated with both adequate and good CERDIK behavior. The data analysis utilized the Fisher exact test, as even after consolidating cells into a 2x2 table, one cell still had an expected count of less than 5. The Fisher exact test resulted in a p-value of 0.511, indicating that there is no significant association between knowledge of breast cancer prevention and CERDIK behavior among adults in Tlogomas.

4. DISCUSSION

Knowledge of Breast Cancer Prevention

Nearly all respondents have insufficient knowledge regarding breast cancer prevention. This finding indicates that the adult population in this study lacks both knowledge and understanding of how to prevent breast cancer. The deficiency in knowledge is reflected in the respondents' answers: nearly all respondents are unaware of breast cancer as a disease; nearly all do not know the early symptoms of breast cancer; the majority are unfamiliar with breast self-examination (SADARI); a small proportion does not know the stages of breast examination; and half of the respondents are unaware of the changes in breast shape to watch for during self-examination.

This lack of knowledge is influenced by several factors, including education level, occupation, age, interest and experience, environment, and access to information (Mubarak,

2011). Regarding the participants' education level. The respondents are all high school graduates currently pursuing undergraduate degrees. Despite the higher education level associated with the S1 (bachelor's degree), which typically provides broad exposure to various subjects, all respondents are adults who are majoring in education. It is possible that their program does not cover breast cancer prevention in depth, leading to their insufficient knowledge. Mubarak (2011) notes that education aims to develop one's ability and understanding. Higher education generally correlates with broader knowledge, yet in this case, the specific focus of their studies may limit their exposure to health-related information.

Regarding the participants' age. All respondents are aged 19-23 years. This age range is generally considered mature, where knowledge should ideally be well-developed. However, knowledge acquisition is also dependent on experience and exposure to information. The respondents' major in education might contribute to limited engagement with health-related topics such as breast cancer prevention (Wawan & Dewi, 2010).With regard to access to media, all respondents have access to mobile phones, which could facilitate browsing for health information, including breast cancer prevention. Despite this, a lack of interest in the subject area may hinder their efforts to seek out relevant information. Students in education programs might prioritize educational content over health information. Notoatmodjo (2014) highlights that information, whether from print media, social media, electronic media, or health education, plays a crucial role in shaping knowledge levels.

Based on the factor of information and knowledge, Dewi & Lubis (2012) emphasize that knowledge is a fundamental domain influencing an individual's actions. Knowledge underpins attitudes and behaviors and determines whether these attitudes and behaviors are sustained. Notoatmodjo (2010) also points out that higher educational attainment directly impacts knowledge levels; thus, more advanced education generally results in greater knowledge.

CERDIK Behavior

The majority of respondents demonstrate a moderate level of CERDIK behavior. This suggests that while most of the adolescents exhibit reasonable adherence to CERDIK principles, certain behaviors have not been fully implemented. The adequacy of CERDIK behavior is reflected in the responses: most of the adolescents do not smoke; nearly all respondents consume healthy vegetables daily to prevent illness; the majority take afternoon naps; and most respondents confide in friends when facing problems.

Regarding the age becomes a significant factor influencing CERDIK behavior. All respondents are aged 19-23 years, which indicates that they are in early adulthood—a stage where mature thinking begins to develop. This is consistent with Wawan & Dewi (2010), who assert that as individuals grow older, they gain maturity in both thought and action. Sudirjo & Alif (2018) further explain that cognitive maturity, which includes the ability to establish new lifestyle patterns, typically starts between the ages of 21 and 40, extending up to 60 years. The respondents in this study, falling within the 21-40 age range, are thus at a stage where age significantly contributes to their behavior (Dewi, 2021; Febryani et al., 2021).

Gender is another influential factor in CERDIK behavior. The respondents in this study are all female, and women generally have a better understanding of health than men.

Wulandari et al. (2020) agrees, noting that women typically possess a better grasp of disease prevention, likely because they have more opportunities to read and socialize, which facilitates discussions about health in their social circles. This aligns with Green's assertion that gender plays a role in shaping health behaviors. Galasso et al. (2020) also found that gender differences in sociodemographic characteristics can lead to varying perceptions and behaviors.

Various factors contribute to the formation of individual behavior. Notoatmodjo (2014) identifies internal factors, such as gender, intelligence level, and emotional state, and external factors, such as the environment, social context, culture, politics, and economics, as influencers of behavior. Age also plays a role in shaping behavior (Dewi, 2021; Febryani et al., 2021). A high level of knowledge is associated with good CERDIK behavior, and factors such as education, socioeconomic status, health education, and exposure to information influence knowledge levels (Sari & Ardianto, 2021).

The Relationship between Knowledge of Breast Cancer Prevention and CERDIK Behavior

Respondents with limited knowledge of breast cancer prevention still exhibit moderately good CERDIK behavior. This finding suggests that even those with lower levels of knowledge and understanding can still engage in positive health behaviors. This is consistent with other research indicating that respondents with poor attitudes toward non-communicable diseases (NCDs) often still implement CERDIK behaviors in their daily lives with a prevalence of 55% (Utara et al., 2023). Statistical analysis shows no significant relationship between breast cancer prevention knowledge and CERDIK behavior among adults in Tlogomas.

CERDIK behavior is a public health initiative encouraging a healthy lifestyle. As a government-endorsed program, CERDIK promotes regular health checks, avoiding smoking, engaging in physical activity, maintaining a balanced diet, ensuring adequate rest, and managing stress, all to prevent NCDs and improve overall health quality (Direktorat Promosi Kesehatan dan Pemberdayaan Masyarakat Kementerian Kesehatan, 2022). The formation of behavior typically begins with adequate knowledge and positive attitude. Behavior grounded in sound knowledge is more sustainable than behavior not based on knowledge (Notoatmodjo in Damayanti, 2017). Observable behavior develops through several stages: (a) Awareness: individuals recognize and acknowledge an object or stimulus; (b) Interest: individuals begin to show interest in the stimulus, and their attitude starts to form; (c) Evaluation: individuals weigh the pros and cons of adopting new behavior, indicating an improvement in attitude; (d) Trial: individuals start experimenting with the behavior; and (e) Adoption: individuals fully integrate the new behavior into their lives, aligned with their knowledge, attitude, and awareness (Notoatmodjo, 2014). Applying this theory to the current study, the formation of CERDIK behavior for breast cancer prevention does not happen instantaneously but rather through a gradual process where individuals gradually adopt healthier behaviors.

The statistical analysis in this study indicates no significant relationship between breast cancer prevention knowledge and CERDIK behavior among adults in Tlogomas. This finding contrasts with the theory that adequate knowledge about a specific subject leads to good behavior, as knowledge is the foundation that shapes one's actions (Notoatmodjo, 2007). The researcher acknowledges that while knowledge can influence the adoption of new (healthy) behaviors, it is not the sole determinant; other factors also contribute to behavior formation. This aligns with Irwan (2020), who argues that the adoption of new behavior is not solely driven by knowledge and attitude but is also influenced by an individual's intent to act. Additionally, factors such as intelligence, emotional state, environment, socio-cultural context, and economic status play a role in shaping behavior (Notoatmodjo, 2014).

5. CONCLUSION

The study found no significant relationship between breast cancer prevention knowledge and CERDIK behavior among adults in Tlogomas (p-value = 0.511). It is recommended that future researchers focus on health promotion related to breast cancer prevention and explore attitudes and other determinants of CERDIK behavior.

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