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Knowledge of women in working age about breast cancer prevention

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ABSTRACT

Background: Breast cancer involves the uncontrolled proliferation of cells within the breast tissue. Awareness and knowledge regarding this malignancy are essential for women to engage in preventive measures effectively. **Aim of the study:** The study aimed to determine the level of knowledge among women of working age about breast cancer prevention. **Material and methods:** This study conducted a cross-sectional survey using a structured questionnaire distributed through street interviews. A total of 100 female participants aged 18-59 years were included in the study. **Results:** Our study found that the level of knowledge among women of working age regarding breast cancer prevention is moderate. A total of 58% of participants are aware that breast self-examination should be initiated after the age of 20. However, only 18% identified it as the most straightforward method for early detection for breast cancer. Additionally, 32% of respondents were aware of the correct timing for performing breast self-examination. **Conclusions:** There is a clear need of the implementation of educational programs aimed at enhancing women's awareness and knowledge about breast cancer prevention.

Keywords: breast cancer; prevention; women's knowledge; breast cancer prevention

1. INTRODUCTION

Breast cancer is the second leading cause of death among women, after lung cancer. Diagnosis of breast cancer usually takes place in three stages: medical examination, imaging test, and biopsy. Łukasiewicz et al., (2021) recommend that women first consult a doctor for an examination of the breasts and lymph nodes. The doctor will ask about the presence of breast cancer in the family and whether the woman has already gone through menopause. If there is a risk of breast cancer, your doctor will refer you for imaging tests. In addition, blood tests may be ordered (Ribnikar et al., 2015). Most breast cancer cases occur in the group of women between 45 and 64 years of age. Most deaths occur in patients aged 65 to 79 years (Orucevic et al., 2015).

2. MATERIALS AND METHODS

The research method used was a diagnostic survey, and the technique was a questionnaire. The survey consisted of 22 questions. The first part of the survey

consisted of 5 questions to classify the surveyed group in terms of age and economic status. The second part, composed of 17 questions, examined the level of knowledge of the respondents regarding breast cancer treatment and prevention. The survey was conducted as a street survey in the center of a big city during the May long Weekend, from May 1 to 3, 2025. The study included 100 women aged 18-59 years. Respondents were informed that the questionnaire was anonymous and that participation in the survey was voluntary. Completing the questionnaire was tantamount to informed consent to participate in the study. The study statistically compiled the collected research material using the IBM SPSS Statistics package (v. 27).

3. RESULTS

Participants

A total of 100 women participated in the survey conducted for this study. Most of them (38%) were between 26 and 35 years old. Twenty-six percent of respondents indicated an age range of 36-45 years, and 22% were between 18 and 25 years old. The fewest women indicated that their age exceeded 45 (14%).

Family history of breast cancer

The survey asked women about cases of breast cancer in their families. The analysis shows that as many as 47% of the respondents had breast cancer. In 28% of cases, none of the women in the family suffered from breast cancer, and every fourth woman did not have accurate knowledge of this subject.

Results of the knowledge survey

The study asked participants at what age the most excellent chance of developing breast cancer occurs. The collected information shows that, in the opinion of 69% of them, the highest probability occurs from age 50, while 19% indicated that the risk of developing the disease is not related to women's age. According to 8% of respondents, the highest risk of developing breast cancer occurs between the ages of 30 and 50, and in the opinion of 4% it is between the ages of 20 and 30.

Risk factors for breast cancer

Participants were requested to mark a few factors they considered possible in increasing their risk of developing breast cancer. Most respondents (68%) focused on the genetic burden of the disease. In the opinion of 54% of participants, age is essential, while 32% believe that lifestyle plays an important role. Late menopause, according to 24% of women, can increase the risk of developing breast cancer. The exact number focused on hormonal factors. A group of 16% of respondents in the analyzed question indicated having many children and experiencing an early first menstrual period (Table 1).

Table 1. Factors that increase the risk of breast cancer, according to the respondents.

Risk factors	Number of Participants (N=100)	Percent (%)
Age	54	54
Genetic burden	68	68
Late menopause	24	24
Hormonal factors	23	23
Early menarche	16	16
Having many children	16	16
Lifestyle	32	32

Symptoms of breast cancer

In the following question, respondents were requested to provide symptoms suggesting the possibility of breast cancer in women. Participants could select more than one answer. Sixty-two respondents indicated breast hardening in the form of a lump, and 54 reported breast pain. For twenty-eight percent of participants, a change in the shape of the breasts can be dangerous, and 24% of the study group paid attention to enlarged lymph nodes in the armpit area. Bloody or mucous discharge oozing from the nipple caused a lot of anxiety in 18% of respondents, and 16% considered the "orange peel" on the breast a suggestion of breast cancer (Table 2).

Table 2. The main symptoms suggestive of breast cancer, according to the respondents.

Symptom	Number of Participants (N=100)	Percent (%)
Breast hardening (lump)	62	62
Breast pain	54	54
Change in breast shape	28	28
Enlarged lymph nodes	24	24
Bloody or mucous nipple discharge	18	18
"Orange peel" appearance on breast	16	16

Breast Cancer Related Research

Further on, the study asked participants which screening test they think plays the most critical role in breast cancer prevention. The collected information shows that 58% opted for mammography and 27% for magnetic resonance imaging. In the opinion of 15% respondents, ultrasound plays the most crucial role in breast cancer prevention. Participants were requested to indicate the simplest test performed to prevent breast cancer. Here you can see a large variety of answers received. Most respondents, i.e., 34% and 31%, respectively, indicated mammography and ultrasound. Eighteen percent of the participants recognized the key role of breast self-examination, and 17% opted for other tests.

Breast self-examination

Participants were requested to report whether they had examined their breasts. Analysis of the answers shows that 41% of them perform breast self-examination regularly, and 44% do it occasionally. Fifteen percent of respondents do not perform it at all. The survey asked participants when it is best to perform breast self-examination. Participants could select more than one answer. For 58% of them, the timing does not matter, but they consider it essential to perform breast self-examination systematically. Thirty-two percent of participants said that women after menopause should always examine their breasts on the same day of the month. According to 31% of respondents, the optimal time to perform breast self-examination is during menstruation, and for 24% it is after menstruation. Twenty-three women reported that it is better to get tested before menstruation, and 15% gave other times recommended for breast self-examination. The survey asked participants to provide the main reason why they did not perform preventive breast examinations. Thirty-two percent of them indicated that they did not have time to go to the doctor. Twenty-two percent of participants reported that they do not know about breast cancer treatment, and 18% reported fear of detecting the disease. Seventeen percent reported that they do not undergo tests because they cannot afford them, and 11% pointed out that it is challenging to access specialists who perform the necessary preventive tests. Only 15% of participants had undergone a breast X-ray at least once, while 85% had never had the examination.

Breast cancer prevention

Question No. 21 concerned factors that play a significant role in primary cancer prevention. Respondents could select more than one answer. Forty-eight participants reported that the state of women's knowledge about prevention is essential, and 38 paid attention to maintaining an appropriate body weight. Thirty-four respondents suggested that women should limit their consumption of strong alcohol, and 32 suggested that women should increase their physical activity. Twenty-seven participants focused on reducing the level of fat in their diet, and 18 recommended increasing the amount of folic acid consumed (Table 3).

Table 3. Factors influencing the effectiveness of breast cancer treatment, according to the respondents

Factor in Primary Cancer Prevention	Number of Participants (N=100)	Percent (%)
Reducing dietary fat	27	27
Increasing physical activity	32	32
Increasing folic acid intake	18	18
Knowledge about prevention	48	48

Limiting consumption of strong alcohol	34	34
Maintaining appropriate body weight	38	38

Sources of knowledge about breast cancer

In our study, we also asked participants to provide several sources from which they had learned about breast cancer prevention. The vast majority (58% of respondents) opted for the Internet. Thirty-five percent of participants reported learning from conversations with a doctor or nurse, and 19% reported learning from books and magazines. Twenty-four participants each reported leaflets and brochures and conversations with family and friends. The fewest participants, i.e., 11%, chose to get information from the radio and television (Table 4).

Table 4. Sources of knowledge on breast cancer prevention, according to the respondents.

Sources of knowledge	Number of Participants (N=100)	Percent (%)
Doctor/nurse	35	35
Family and friends	24	24
TV and radio	11	11
Books and magazines	19	19
Internet	58	58
Leaflets and brochures	24	24
Other	17	17

4. DISCUSSION

According to research conducted by Kinteh et al., (2023) the media became the primary source of information about breast cancer for the majority of respondents (62.8%), followed by healthcare professionals (33%). In our study, 35% of respondents found information on breast cancer prevention by talking to a doctor or nurse. In the present study, 68% of participants indicated the genetic burden of the disease as the leading cause of breast cancer. In the study by Kinteh et al., (2023) the main factor selected by respondents was obesity (35.2%), followed by family and genetic factors (57.5%). These results are comparable to the results of the breast cancer awareness survey among students, described in other studies (Akhtari-Zavare et al., 2015; Godfrey et al., 2016; Sama et al., 2017).

In our study and in other studies, there is a knowledge gap regarding risk factors such as early onset of menstruation (under 12 years of age) and late menopause (Godfrey et al., 2016; Sindi et al., 2019). A significant number of study participants showed knowledge of the typical symptoms of breast cancer. Our research is consistent with previous studies conducted in other countries, in which respondents also correctly identified signs and symptoms of breast cancer (Godfrey et al., 2016; Sama et al., 2017; Sindi et al., 2019). A study by Harvie et al., (2015) showed that breast cancer can be avoided by eliminating risk factors. The Tazhibi & Feizi (2014) study showed insufficient knowledge about breast cancer risk factors among the respondents.

In our research, we showed that eating habits are also associated with the incidence of breast cancer. Research by Chen et al., (2016) showed that increasing fiber intake can reduce the risk of breast cancer by 12%. In addition, a meta-analysis of ten prospective cohort studies reported an 8% increase in breast cancer incidence associated with a high-glycemic-index diet (Dong & Qin, 2011). The importance of our research can be highlighted by analyzing the available literature

5. CONCLUSION

Based on the analyzed research results, we conclude that the knowledge of women of working age about breast cancer prevention is at a moderate level. More than half of the surveyed women recognize breast cancer statistics, risk factors, and symptoms that should lead women to consult a doctor. Over 58% of respondents know that breast self-examination should begin after the age of 20, but only 18% identify it as the easiest method for detecting breast cancer. Additionally, 32% are aware of the correct timing for performing it. Women who have considerable knowledge about preventive measures very rarely use this knowledge in practice. Only 41% of the respondents perform it regular, and only 15% of them performed breast x-rays. Knowledge about breast cancer prevention is mainly derived from

the Internet. As many as 58% of women reported this, which is somewhat concerning because information on websites is not always reliable. The information that 35% consult a doctor or nurse is very positive in this case. It is alarming that as many as 28% of women indicate difficult access to tests due to financial reasons or due to the lack of specialists in this area. A considerable number of women also do not attend free preventive examinations due to lack of time and limited knowledge.

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All authors have read and agreed with the final, published version of the manuscript.

Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study.

Ethical approval

An application was submitted to the Bioethics Committee at the University of Rzeszów (KBE No.09/05/2020) to obtain a positive opinion on the study.

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Conflict of interest

The authors declare that they have no conflicts of interests, competing financial interests or personal relationships that could have influenced the work reported in this paper.

Data and materials availability

All data associated with this study will be available based on the reasonable request to corresponding author.

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