

Tarkowska Magdalena, Głowacka–Mrotek Iwona, Gastecka Agata, Nowikiewicz Tomasz, Senterkiewicz Lilla, Saletnik Łukasz, Zegarski Wojciech. Evaluating knowledge of young women regarding breast cancer prevention. *Journal of Education, Health and Sport*. 2017;7(9):22-32. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.854753>  
<http://ojs.ukw.edu.pl/index.php/johs/article/view/4748>

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26.01.2017).  
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

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The authors declare that there is no conflict of interests regarding the publication of this paper.  
Received: 01.08.2017. Revised: 02.08.2017. Accepted: 28.08.2017.

## Evaluating knowledge of young women regarding breast cancer prevention

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### Ocena zakresu wiedzy młodych kobiet na temat profilaktyki raka piersi

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### Streszczenie

**Wstęp:** W krajach rozwiniętych, spośród wszystkich schorzeń onkologicznych, rak gruczołu piersiowego stanowi najczęściej występujący nowotwór złośliwy wśród kobiet. Regularne wykonywanie badań skriningowych pozwala na wykrycie choroby we wczesnym stadium zaawansowania oraz częstsze wdrożenie leczenia oszczędzającego wśród tych pacjentek.

**Cel pracy:** Celem pracy była analiza poziomu wiedzy młodych kobiet na temat czynników ryzyka zachorowania na raka sutka oraz metod wczesnego wykrywania zmian patologicznych.

**Materiał i metoda:** Analizą objęto próbę 159 kobiet w przedziale wiekowym 18 – 30 lat zgłaszających się na wizytę ginekologiczną w NZOZ Centrum Medycznym Endo–Medica w Bydgoszczy. Metodą badawczą był sondaż diagnostyczny, technika ankietowa. Narzędzie badawcze stanowił kwestionariusz ankiety konstrukcji własnej. Badanie przeprowadzono w formie anonimowej, okresie od listopada 2016 r. do lutego 2017 r.

**Wyniki:** Badania własne wykazały niewystarczający poziom wiedzy ankietowanych w zakresie profilaktyki raka piersi. 68,6% wskazała, iż samobadanie piersi należy rozpocząć po 20 roku życia. 66,7% poprawnie również opowiedziało się za dniem cyklu, w którym należy je wykonać. Pomimo, iż większość badanych (62,9%) знаła technikę samobadania piersi, jego regularne wykonywanie zadeklarowała niespełna połowa grupy. Jako główny czynnik ryzyka rozwoju raka sutka ankietowane wskazały uwarunkowania genetyczne. W zakresie objawów raka piersi kobiety najczęściej wymieniały guzek, zgrubienie w obrębie dołu pachowego oraz wyciek z brodawki. Niewystarczający poziom wiedzy w badanej grupie stwierdzono na temat założeń Populacyjnego Programu Wczesnego Wykrywania Raka Piersi.

**Wnioski:** Analiza wyników badania wskazała na potrzebę intensywnie prowadzonej edukacji onkologicznej wśród młodych kobiet, celem zwiększenia stopnia wiedzy w zakresie środowiskowych czynników stymulujących karcinogenezę w obrębie gruczołu piersiowego oraz metod wczesnego wykrywania zmian nowotworowych.

**Słowa kluczowe** rak piersi, wiedza kobiet, profilaktyka pierwotna

### **Evaluating knowledge of young women regarding breast cancer prevention**

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**Introduction:** Regular screening for breast cancer allows to detect the disease at an early stage and to introduce breast-conserving surgical treatment more commonly in patients.

**Aim:** The aim of this study was to evaluate knowledge of young women regarding risk factors of breast cancer as well as methods of early detection of pathological masses.

**Materials and methods:** The study included 159 females aged 18 to 30 presenting to the gynecologist at the non-public healthcare center Endo-Medica in Bydgoszcz. The diagnostic survey was conducted using our own questionnaire. The study was conducted anonymously between November 2016 and February 2017.

**Results:** It was stated by 68.6% of respondents that self-examination of the breasts should be initiated at the age of 20. Also, 66.7% correctly indicated the day of the menstrual cycle, when the examination should be performed. Although the majority of participants (62.9%) were familiar with the self-examination technique, less than a half reported regular checking. As the major factor of developing breast cancer, they pointed out genetic predisposition. Considering breast cancer symptoms, the respondents listed nodules, axillary masses and nipple discharge. Insufficient amount of knowledge was observed regarding the National Early Breast Cancer Detection Program.

**Conclusions:** The results suggest the need of intensive oncologic education among young women in order to raise awareness about environmental factors promoting development of breast cancer as well as methods of its early detection.

**Key words:** breast cancer, knowledge of women, primary prophylaxis

## Introduction

According to the data published by the National Cancer Registry, breast cancer is the most common malignant tumour in Poland and other developed countries. In 2013, there were 17 142 cases of this disease noted in Poland, while the number of deaths in this period amounted to 5816 [1]. In the years 2003-2005, the 5-year relative survival rate in women treated for breast cancer in Poland amounted to 77,2% [1].

In 2012, there were 1,7 million new cases reported worldwide [2]. To a large extent, the prognosis depends on the degree of disease advancement: size of the primary tumour, number of affected lymph nodes and occurrence of distant metastases. Therefore, it's extremely important to detect pathological changes at early stage of development [1-7].

Getting to know the etiology of breast cancer is still the subject of ongoing research. The results of analyzes have proved the existence of many risk factors for carcinogenesis within the nipple epithelial cells [4]. More than half of them have environmental character. Due to this fact, the aim of the actions comprising the primary prophylaxis is to reduce the incidence rate [4,8,9]. The secondary prophylaxis includes mass testing allowing for detection of the disease at asymptomatic stage. The screening test, which is commonly used to detect breast cancer, is mammography. It allows for the visualisation of breast gland parenchyma with the use of small doses of X-rays. Due to the fact that nearly 50% of cases are diagnosed in the age group 50-69, the National Early Breast Cancer Detection Program in Poland is aimed at this group of women [1]. This program was designed to perform X-ray

mammography in women belonging to the above-mentioned age group every two years or, in the case of increased risk of illness (positive family history, presence of BRCA1 and BRCA2 genetic mutations), every 12 months [1,4]. Early detection of pathological changes allows for the reduction of mortality rate [10]. According to the published data, the mortality rate for breast cancer in women using the invitations for mammography test is reduced by 23% compared to the population of persons within the same age group, who do not use the screening program. In the case of women, who regularly perform mammography, the mortality rate is lower by nearly 40% [10,11]. The chances for complete recovery in the case of malignant cancer diagnosed at early stage of advancement amount to 90%, while the survival rate for metastatic breast cancer amounts to 23% [2,12].

Thanks to the systematically conducted mammography screening of breast cancer, it's also possible to use the surgical procedures of conserving treatment more often in patients with this disease. This includes both the surgical *breast conserving treatment* (BCT) and lymphatic system of the axilla (armpit) - *sentinel lymph node biopsy* (SLNB) [5, 6, 7].

Other measures promoted in the scope of secondary prophylaxis, such as the performance of ultrasound examination of the breast (USG) and regular self-examination of breasts, also gain a measurable significance [13]. The aim of this work was to analyze the knowledge of young women on the subject of breast cancer prevention.

## **Materials and methods**

The study included 159 women aged 18 to 30 coming for the gynaecological visit at the non-public healthcare center Endo-Medica in Bydgoszcz in the period from November 2016 to February 2017. The diagnostic survey method was used in this work. The research tool consisted of an original questionnaire developed specifically for the needs of this study. It was developed based on the literature cited in this paper, which deals with primary and secondary prophylaxis of breast cancer. The questionnaire consisted of 7 questions concerning sociodemographic characteristics of the studied persons (education, place of residence, employment status, number of children, marital status, socioeconomic status and past history of breast cancer among family members and/or closest friends) and 19 questions assessing the knowledge about risk factors for carcinogenesis within the breast gland, as well as primary and secondary breast cancer prophylaxis. The study was carried out after receiving the approval of the Bioethics Committee of the Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń (KB 611/2016). The survey was voluntary and anonymous. The obtained data was encoded in Microsoft Office Excel 2007.

## Results

Women with higher education were predominant in the studied group (65,4%). Most of respondents lived in urban areas (72,9%), while the rural residents constituted 27,6% of the group. Over half of the respondents (67,9%) had full-time job. Over half of the analyzed women (57,8%) were childless, 22,6% indicated having one child, 13,8% - two children. The vast majority of studied women were married (64,1%), single women constituted 27,0% and in other cases they were divorced (4,4%) or widowed (2,5%). The majority of women assessed their socioeconomic status as good (50,9%) or average (36,4%). In 16,9% of the studied women, the presence of malignant breast cancer was diagnosed among family members or close friends. The detailed data is provided in table 1.

**Table 1.** General characteristics of the studied group (n=159).

No.	Independent variables	Multiple-choice answers	n	Percent (%)
1.	Education:	1. Primary education	3	1,8%
		2. Vocational education	6	3,7%
		3. Secondary education	46	28,9%
		4. Higher education	104	65,4%
2.	Place of residence:	1. Village	44	27,6%
		2. City	116	72,9%
3.	Employment status:	1. full time job	108	67,9%
		2. running a household	15	9,4%
		3. disability living allowance	3	1,8%
		4. unemployed	14	8,8%
		5. own business activity	22	13,8%
4.	Number of children:	1. 0	92	57,8%
		2. 1	36	22,6%
		3. 2	22	13,8%
		4. 3	3	1,8%
		5. 4	1	0,6%
		6. 5	1	0,6%
		7. 6	0	0,0%
		8. 7	1	0,6%
5.	Marital status:	1. Single	43	27,0%
		2. Married	102	64,1%
		3. Widow	4	2,5%
		4. Divorced	7	4,4%
6.	How do you assess your socioeconomic status?	1. Low	4	2,5%
		2. Average	58	36,4%
		3. Good	81	50,9%
		4. Very good	13	8,1%
7.	Have someone in your family or among the closest friends had breast cancer?	1. Yes	27	16,9%
		2. No	132	83,0%

In the second part of the questionnaire, women answered questions concerning risk factors and methods of early detection of breast cancer. The vast majority of respondents (68,6%) indicated that self-examination of breasts should begin after 20 years of age and that it should be performed on the third day after menstruation (in menstruating women) – 66,7%. In the case of breast self-examination of postmenopausal women, 29,6% of the respondents indicated that it should be performed always on the same day of the month, 37,7% of the respondents indicated that the day of self-examination is irrelevant, while 32,7% of women did not know the answer to this question. 0,6% of the respondents indicated that it was no longer necessary after the menopause.

54,7% of respondents stated that self-examination of breasts should be performed standing up or lying down and standing up (27,7%). In the case of a question concerning the method for performing this examination, 47,2% of women in the studied group indicated that self-examination should be performed with the use of all fingertips (47,2%) or with the use of fingertips of the index finger, middle finger and ring finger (41,5%). In the case of the question concerning frequency of breast self-examinations, the vast majority of respondents (67,9%) stated that this activity should be performed once a month (in the case of 18,2% of women - once a year, 9,4% - once a week, 4,4% - not more often than once every 2 years). Despite the fact that most of the studied women (62,9%) knew the technique of breast self-examination, only less than half of the group (45,9%) declared its regular performance.

The women indicated the following as the most common symptoms that suggest breast cancer: palpable lump (100%), thickening in the armpit area, enlarged lymph nodes (79,9%) and nipple discharge (78,6%). More than half of the studied group also indicated the occurrence of breast pain (52,2%) and retraction of the nipple or its ulceration (50,9%).

According to the answers given by the respondents, the most common risk factors for breast cancer include: genetic predispositions (98,7%), application of hormone replacement therapy (44,0%), smoking (42,1%) and long-term stress (40,3%). As the main source of knowledge providing information on breast cancer, the respondents indicated: Internet (66,0%), magazines and newspapers (39,6%) and information received from gynaecologist and midwife (37,1%).

In the case of a question about the age of women, who are the target group of the National Early Breast Cancer Detection Program, just over 38% of the respondents indicated the age range of 40-50 years, 31,5% of the respondents stated that the program covers women of all ages. 45,9% of the respondents indicated that the National Early Breast Cancer Detection Program aims to perform preventive ultrasound and mammography examination

among women over 40 years of age, 43,4% of the respondents stated that the program consists of free mammography conducted in women in the age group of 50-69 years, at two-year intervals. Almost 70% of the studied women indicated that mammography is an examination conducted with the use of X-rays, which should be repeated every two years (67,3%).

Half of the studied women stated that the type and processing method of consumed foods or products is important in the process of carcinogenesis within the breast gland. 35,8% of the respondents did not know the answer to this question.

Over 50% of women included in the study did not have knowledge about screening examinations for breast cancer. 31,4% of the respondents indicated mammography (22,0% - ultrasound examination) as the primary radiological method in the scope of diagnosis of the breast cancer. 37,1% of the group had never performed a breast ultrasound (this was the most frequently indicated answer). 81,1% of the studied women stated that in the future, they plan to broaden their knowledge on the breast cancer prevention.

## **Discussion**

Despite the observed progress in the scope of used diagnostic methods, numerous information campaigns undertaken within the framework of prophylaxis measures and the dynamic development of innovative treatment methods, the epidemiological data concerning morbidity and mortality due to breast cancer is still alarming. One of the key factors that can significantly reduce the morbidity rate is the knowledge of women about the pro-health behaviours and actions protecting against the development of malignant breast cancer [3]. Increase in the pro-health consciousness is possible, among others, through intensive oncological education aimed at analyzing measures preventing the occurrence of new cases, particularly those included in the primary prophylaxis. Own research conducted among 159 women with the use of diagnostic survey method indicates insufficient level of knowledge of the studied women in the scope of breast cancer prevention. Similar conclusions are presented in analyzes conducted by other authors [3,14-18].

Self-examination of breasts is a simple method of detecting pathological changes within the breasts that does not require any financial contribution [3,14,19]. In our own study, 68,5% of the respondents believed that self-examination should be started after 20 years of age. Similar results in this scope were obtained by Zych et al. [14]. However, despite the fact that 62,8% of the respondents stated that they are familiar with the technique of this examination, more than half of the analyzed women did not give a correct answer in what position this examination should be performed.

The unsatisfactory level of knowledge of the respondents was also indicated by answers to questions about the frequency of breast self-examination and the day on which they should be performed in the case of postmenopausal women. Also in the work of Ślusarska et al. only 56,3% of the respondents indicated that postmenopausal women should perform self-examination always on the same day of the month [3]. 66,6% of women correctly answered that menstruating women should self-examine their breasts 2-3 days after menstruation. Similar results were obtained by other authors [19,20].

In the studied material, the vast majority of respondents performed breast self-examination irregularly or not at all. Similar results concerning the above-mentioned problem were presented by Paździor et al. The technique of self-examination was used by 70% of the women analyzed by them, however only 36% out of them performed it regularly once a month [21].

Knowledge about the symptoms that may suggest the occurrence of malignant breast cancer is one of the key factors in the process of possibility of the early diagnosis of this disease. In our study, the women most frequently indicated the following breast cancer symptoms: palpable lump (100%), nipple discharge (78,6%), thickening in the armpit area or presence of the enlarged lymph nodes (79,8%). Similar results were obtained from studies conducted by other authors [14,15,19,21]. It's very alarming that more than half of the women in our study could not list other symptoms of carcinogenesis in the nipple area. Asymmetry of the breasts was indicated only by 31,4% of the respondents, orange-peel skin symptom by 20,7%, change in the skin colour by 42,7%, change in the breast temperature by 20,1%, retraction of the nipple and its ulceration by 50,9% of the respondents.

As it was mentioned earlier, the studied group indicated that the most important factors increasing the probability of breast cancer include: genetic predispositions (98,7%), application of hormone replacement therapy (44%), smoking (42,1%), long-term stress (40,2%) and improper lifestyle (38,9%). Similar results were obtained by Zych et al. and Strojek et al. [14,15]. However, more than half of the respondents, just like in the work of Przysada et al., could not list any other risk factors for breast cancer [22].

We can't overestimate the role of mass media in the process of raising awareness among women in the scope of primary and secondary prophylaxis of breast cancer. As it was stated in our study, as many as 66% of women acquired knowledge about the risk factors for breast cancer and methods of prophylaxis from the Internet. It's alarming that only 37% of the respondents identified the medical staff (gynaecologist, midwife) as a source of knowledge. Similar observations were published by Przysada et al. [22].



Mammography is a non-invasive radiological examination allowing for early detection of changes in the breast area. It has been shown that the introduction of national screening mammography programs reduced mortality from breast cancer by approximately 30% [10,11]. The risk of occurrence of this cancer in women increases significantly after 50 years of age, therefore the National Early Breast Cancer Detection Program in Poland is aimed at women aged 50-69 [17]. In our study, only 25% of the respondents gave a correct answer to the question about the age range covered by this program. Moreover, only 43,4% of the respondents stated that it allows for performance of free mammography at 2-year intervals. Unfortunately, as many as 30% of the respondents did not know what is a mammography examination. Najdyhor et al. [17] also obtained unsatisfactory results concerning women's knowledge about mammography examinations. The positive aspect of our study is the fact that 81,1% of surveyed women plan to increase their knowledge in the scope of breast cancer prevention in the future.

Popularization of pro-health behaviours is a key element of the promotion of health and health education [23]. The results of many of the studies cited in this work indicate a need to disseminate knowledge about the risk factors for breast cancer and screening programs.

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