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# Samoocena stylu życia i profilaktyka raka gruczołu piersiowego na przykładzie studentek wybranych uczelni trójmiasta

# The self-assessment of lifestyle and prevention of breast cancer on the example of female students from selected high schools in Tricity

## Streszczenie

**Wstęp.** Rak gruczołu piersiowego jest jedynym z najczęściej wykrywanych nowotworów u kobiet w Polsce i na świecie. Rozpoznanie choroby w początkowym stadium rozwoju zwiększa szanse na wyleczenie chorego. Przestrzeganie zasad zdrowego stylu życia oraz udział w badaniu mammograficznym i samobadaniu piersi odgrywa znaczącą rolę w profilaktyce raka piersi.

**Cel.** Celem pracy była analiza zachowań zdrowotnych studentek trójmiejskich uczelni w odniesieniu do profilaktyki raka gruczołu piersiowego.

**Materiał i metody.** Materiał stanowi 168 studentek Gdańskiego Uniwersytet Medycznego, Uniwersytetu Gdańskiego, Politechniki Gdańskiej oraz Wyższej Szkoły Humanistycznej w Gdańsku. Badania przeprowadzono w okresie od marca do czerwca 2010 roku. W realizacji pracy posłużono się metodą sondażu diagnostycznego, a do wyliczenia zależności między zmiennymi wykorzystano współczynnik korelacji liniowej Pearsona.

**Wyniki.** Wyniki badań wskazują, że poziom wiedzy na temat zachowań zdrowotnych oraz wykonywania samobadania piersi i mammografii w grupie studentek wybranych gdańskich uczelni jest zadawalający. Pomimo posiadanej wiedzy studentki nie wykonują samobadania piersi, a ich dieta nie jest dostatecznie zbilansowana. Uzyskane wyniki wskazują, że temat stosowania alkoholu wśród kobiet nie może być bagatelizowany.

**Wnioski.** Brak nawyku samobadania piersi wśród studentek gdańskich uczelni jest potwierdzeniem nieskuteczności podejmowanych działań edukacyjnych co powinno zostać zauważone przez pracowników medycznych, a w tym pielęgniarki i położne.

## Abstract

**Introduction.** Breast cancer is one of the most frequently diagnosed female malignancies in Poland and worldwide. Detection of the disease at its early stages increases the probability of recovery. Obeying the rules of healthy lifestyle, participation in mammographic screening, and self-examination of breasts play vital role in breast cancer prevention.

**Aim.** To analyze the health-related behaviors regarding breast cancer prevention among the female students of higher education institutions from Tricity.

**Material and methods.** The study included 168 female students of the Medical University of Gdansk, University of Gdansk, Gdansk University of Technology, and Gdansk Higher School of Humanities, and was conducted between March and June 2010. We used the method of diagnostic survey, and relationships between studied variables were determined on the basis of Pearson's coefficient of linear correlation.

**Results.** Our study revealed that the group of students from selected Gdansk higher education institutions present satisfactory level of knowledge with regards to health-related behaviors, self-examination of breast, and mammographic screening. Despite possessed knowledge, our students do not self-examine their breasts, and their diet is not sufficiently balanced. Moreover, our findings suggest that the issue of drinking alcohol by women cannot be ignored.

**Conclusions.** The lack of breast self-examination habit among the students of Gdansk higher education institutions points to the inefficiency of existing education programs. This fact should be acknowledged by healthcare professionals, including nurses and midwives.

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## INTRODUCTION

Breast cancer is the most frequently detected malignancy in Poland. In 2006, breast cancer corresponded to 21.5% of all female malignancies. In view of such unfavorable situation, screening becomes of vital importance [1].

Self-examination of breasts and mammography enable to detect breast cancer at early stages, increasing the probability of recovery. Due to mammographic screening, population mortality can be reduced by 5-10% [2]. Aside from participation in screening, our health is also to a large extent influenced by health-related behaviors and the style of life. Many diseases are underlied by improper dietary habits, excessive use of stimulants, and the lack of physical activity. During education regarding the necessity of screening one should emphasize the role of proper lifestyle, aimed at the elimination of the risk factors of breast cancer. Young people do not frequently realize the impact of health-related behaviors on their health, and therefore their awareness should be increased by highlighting the role of primary and secondary prevention [3].

## AIM

The aim of this study was to analyze the health-related behaviors regarding breast cancer prevention among the female students of higher education institutions from Tricity.

## MATERIAL AND METHODS

The study included 168 female students of the University of Gdansk, Gdansk University of Technology, Medical University of Gdansk, and Gdansk Higher School of Humanities, and was conducted between March and June 2010. Both full-time and extramural students were included.

We used the method of diagnostic survey, literature review, and statistical analysis. The survey included questions regarding healthy lifestyle, proper nutrition, consumption of alcohol, participation in prophylactic screening, knowledge on cancers, and the sources of information about cancer prevention.

Relationships between studied variables were determined on the basis of Pearson's coefficient of linear correlation, the values of which can range between -1 to +1.

## RESULTS

Our group included 125 female students aged between 20 and 30 years (74.7%), 15 women between 31 and 40 years of age (8.9%), and 28 participants between 41 and 50 years (16.7%). Mean age of our participants was 28±8.5 years. Unmarried women predominated in our group (n=102, 60.7%), followed by married women (n=58, 34.5%), divorced women (n=5, 3.0%), and widows (n=3, 1.8%).

There were 49 students of the Medical University of Gdansk (29.2%), 41 from the University of Gdansk (24.4%), 40 from the Gdansk Higher School of Humanities (23.8%), and 38 from the Gdansk University of Technology (22.6%).

Seven students (4.4%) had a history of cancer, including one case of breast cancer, and one of left orbital tumor; the remaining five students were unable to define the location of their malignancies. More than one half of the responders (56.0%) had family members who were diagnosed with cancer.

We asked our responders about their more obvious associations regarding healthy lifestyle and activities they undertake to maintain their health Most of the students associated healthy lifestyle with proper nutrition (90.5%), refraining from smoking (64.9%), and active recreation (60.7%).

High percentage of the responders declared that they take care of their health. The fraction of students who declared taking care of their health was the largest (89.3%) among 41- to 50-year-old women. However, there was no significant relationship between the age of responders and their subjectively perceived care of their own health. The respective Pearson's coefficient of correlation equaled to r=0.0926; this falls within a range between 0 and 0.20, which corresponds to the lack of correlation. Also the marital status and the type of higher education institution did not exert significant impact on the self-assessed level of taking care of their health.

The responders could declare in which way they take care of their health. Most of them declared regular visits to a physician (73.9%), refraining from or limiting smoking (66.4%), abstinence from alcohol or its limited consumption (44.5%), and practicing sport or physical exercise (4.7%).

Subsequently, we verified if our students possessed knowledge on the necessity of the self-examination of breast and performed it in practice (Table 1).

**TABLE 1. Relationship between responders' knowledge regarding the necessity of regular self-examination of breasts and the frequency of performing the self-examination [n=168].**

| Do you know about the necessity of regular self-examination of breasts? | Do you self-examine your breasts at home? | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Yes, regularly | | Yes, but rarely | | No, never | | Total | |
| | N | % | N | % | N | % | N | % |
| Yes | 42 | 26.9 | 83 | 53.2 | 31 | 19.9 | 156 | 92.9 |
| No | – | – | 1 | 100.0 | – | – | 1 | 0.6 |
| I do not know/ hard to say | – | – | 11 | 100.0 | – | – | 11 | 6.5 |
| Total | 42 | 25.0 | 95 | 56.5 | 31 | 18.5 | 168 | 100.0 |

We revealed that only 25.0% out of 156 responders who heard about the necessity of the regular self-examination of breasts performed it on a regular basis. Students who did not know about the necessity of the self-examination or chose the answer "I do not know/hard to say" self-examined their breasts relatively rarely. The Pearson's coefficient of correlation equaled to r=0.0274, pointing to the lack of relationship between the knowledge of responders with regard to the necessity of self-examination and performing it in a real life practice.

Mammography is a basic examination used for the detection of female breast cancer. We verified if our students

participated in this form of screening, and tested their knowledge with regard to the relationship between this examination and the early detection of breast lesions (Table 2).

Our study revealed that although only 15% of examined students had ever been subjected to mammography, as many as 95.2% of the responders knew that if regularly performed, this examination enables early detection of breast cancer. There was no significant relationship between the knowledge of our responders regarding early detection of breast cancer by means of mammography, and their participation in mammographic screening (r=-0.0205). However, this latter parameter was significantly influenced by the age of responders, as most of women who had ever had mammography were below 40 years of age.

We asked students who declared participation in mammographic screening about the frequency of performing mammography (Table 3).

Ten responders out of 25 who participated in mammographic screening had this examination performed every 2 to 3 years.

The most frequently declared causes of performing recent mammography included care of one's health (44.0%) and medical indications, i.e. confirming or excluding a diagnosis (24.0%).

**TABLE 2. Relationship between responders' knowledge regarding early detection of breast cancer by means of mammography and the frequency of their involvement in mammographic screening [n=168].**

| Do you know that regular mammographic screening enables early detection of breast cancer? | Have you ever participated in mammographic screening? | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Yes | | Yes | | I do not know/hard to say | | Total | |
| | N | % | N | % | N | % | N | % |
| Yes | 24 | 15.0 | 125 | 78.1 | 11 | 6.9 | 160 | 95.2 |
| I do not know/hard to say | 1 | 12.5 | 7 | 87.5 | – | – | 8 | 4.8 |
| Total | 25 | 14.9 | 132 | 78.6 | 11 | 6.5 | 168 | 100.0 |

**TABLE 3. Frequency of performing mammography by examined students [n=25].**

| How often do you participate in mammographic screening? | N | % |
|---|---|---|
| Every 2-3 years | 10 | 40.0 |
| Once year | 4 | 16.0 |
| Only once thus far | 4 | 16.0 |
| Less frequently than every 5 years | 3 | 12.0 |
| Sporadically – only if I have an opportunity | 2 | 8.0 |
| I do not know/hard to say | 2 | 8.0 |
| Total | 25 | 100.0 |

**TABLE 4. Responders' opinion regarding habits and behaviors which are associated with the incidence of breast cancer [n=168].**

| Do you agree that the modification of certain habits and behaviors can protect against cancer? Please, indicate which of the following behaviors can be associated with the incidence of breast cancer. / Responders' replies | Can protect to a large extent | | Rather can protect | | Rather has no effect | | Has no effect | | Conversely, can be associated with cancer development | | I do not know/hard to say | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Regular involvement in mammographic screening starting above 50 years of age | 104 | 61.9 | 36 | 21.4 | 7 | 4.2 | 12 | 7.1 | 4 | 2.4 | 5 | 3.0 |
| Regular involvement in mammographic screening starting below 50 years of age | 86 | 51.2 | 44 | 26.2 | 14 | 8.3 | 13 | 7.7 | 0 | 0 | 11 | 6.5 |
| Use of hormonal contraceptives | 2 | 1.2 | 16 | 9.5 | 26 | 15.5 | 22 | 13.1 | 62 | 36.9 | 40 | 23.8 |
| Use of hormone replacement therapy after menopause | 6 | 3.6 | 23 | 13.7 | 18 | 10.7 | 11 | 6.5 | 33 | 19.6 | 77 | 45.8 |
| Regular self-examination of breasts | 108 | 64.3 | 51 | 30.4 | 2 | 1.2 | 5 | 3.0 | 0 | 0 | 2 | 1.2 |
| Frequent radiographic examination (various body parts) | 20 | 11.9 | 34 | 20.2 | 13 | 7.7 | 15 | 8.9 | 42 | 25.0 | 44 | 26.2 |
| Consuming larger amounts of vegetables and fruits | 55 | 32.7 | 25 | 14.9 | 44 | 26.2 | 27 | 16.1 | 0 | 0 | 17 | 10.1 |
| Reduced consumption of greasy meals | 50 | 29.8 | 37 | 22.0 | 34 | 20.2 | 19 | 11.3 | 4 | 2.4 | 24 | 14.3 |
| Reduced consumption or cessation of alcohol | 39 | 23.2 | 42 | 25.0 | 36 | 21.4 | 29 | 17.3 | 7 | 4.2 | 15 | 8.9 |
| Cessation of tobacco smoking | 90 | 53.6 | 38 | 22.6 | 14 | 8.3 | 17 | 10.1 | 0 | 0 | 9 | 5.4 |
| Increased physical activity – walking, gymnastics | 65 | 38.7 | 47 | 28.0 | 27 | 16.1 | 16 | 9.5 | 0 | 0 | 13 | 7.7 |

Statement "I am too young" (42.7%) was the cause which was most frequently declared by 131 students who had never had mammography, followed by "I am OK and feel well" (28.2%), and the lack of medical indications to mammographic screening (23.7%).

Subsequently we asked the responders about their opinions regarding habits and behaviors, which are associated with the incidence of breast cancer (Table 4).

Regular self-examination of breasts was most frequently identified as a factor with strongest impact on breast cancer prevention (64.3%), followed by performing mammography below and after 50 years of age (61.9%), and cessation of smoking (53.6%). According to our responders, the use of hormonal contraceptives and frequent radiographic examinations can evidently lead to breast cancer.

As diet is tightly associated with healthy lifestyle, we asked our responders about the frequency they consumed selected food products. The aim of this question was to assess subjectively the diet of our students and to identify the changes that should be implemented to their diets. According to the responders, the products the consumption of which should be increased in order to prevent cancer include vegetables (74.4%), fish (73.8%), fruits (64.0%), and vegetable juices (65.5%). Most of the participants declared they should reduce the consumption of white bread (73.2%), fried dishes (65.5%), lard and bacon (58.9%), sausages, pâtés, and wieners (56.0%).

The use of stimulants is another important component of the style of life. Therefore, we asked our responders about their frequency of alcohol consumption and their opinions regarding the influence of this substance on health (Table 5).

As shown in the table above, most of the examined women (58.9%) declared that alcohol can have negative health consequences but only if consumed in large amounts. As many as 19.2% of the responders declared drinking alcohol 4-6 times per week, while 26.8% of the examined women drank alcohol once a month. The individuals who declared consumption of alcohol were also asked about the number of drinks consumed on a single occasion. The mean value was two 50 ml drinks. The value of the Pearson's coefficient of correlation (r=0.2987) suggested a weak relationship between the opinion of responders regarding the health effects of alcohol and the frequency of its consumption.

## DISCUSSION

Cancer represents a large problem in modern world and can threaten the existence of human being. Breast cancer is the most frequently diagnosed female malignancy in Poland

and worldwide [1,2,4]. Our study revealed that most women (70.04%) take care of their health. Another study, conducted in 2006 in Wielkopolska province, identified a considerable percentage of women who declared taking care of their health; this fraction equaled to 84.5% of examined women [5]. Comparing the findings of both studies one can conclude that most women from both provinces declared taking care of their health.

Mammography is a basic screening tool used to detect early changes in female breasts. According to the National Cancer Institute recommendations, each woman above 40 years of age should be subjected to mammography, alone or in combination with breast palpation, every 1-2 years. A different opinion is presented by experts from EU commission, who recommend performing mammography every 2-3 years in women between 50 and 69 years of age [2,6,7].

Our study revealed that women older than 40 years possessed knowledge on the necessity of performing mammography, and 40% of them performed this examination every 2-3 years, following the National Cancer Institute recommendations. In a previously examined group of women from Wielkopolska province, performing mammography every 2-3 years was declared by 36.5% of participants above 50 years of age, while 13.5% of them declared sporadic participation in mammographic screening [5].

Self-examination of breasts can be very helpful in the early detection of breast malignancies in younger women who are not eligible to mammographic screening. According to some authors, as many as 30-40% of breast lesions can be detected due to the self-examination [2,8]. According to the American Cancer Society recommendations, young women should self-examine their breast starting at the age of 20 years. Moreover, they should be offered information regarding the advantages and benefits related to this examination [6,9,10].

Although as many as 92.2% of our responders declared their awareness regarding the necessity of the regular self-examination, only 25% of them self-examined their breasts on a regular basis; 56.5% of the responders examined their breast occasionally, and 18.5% did not examine them at all. A study conducted in Wroclaw in 2006 included 75 women aged between 26 and 63 years. Most of the participants declared occasional self-examination (77.3%), and only 10.7% of the responders performed this examination regularly and during the proper phase of their menstrual cycle. The remaining women (12.0%) declared regular self-examination but irrespectively of menstrual cycle phase [9]. Therefore, the cumulative percentage of women who self-examined

**TABLE 5. Relationship between responders' opinion regarding the health effects of alcohol and the frequency of its consumption [n=168].**

| Do you agree that drinking alcohol can exert harmful effect on health? | How many times did you drink alcohol during recent year? | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 4-6 times per week | | 1-3 times | | 2-3 times | | once | | several times | | once | | not at all | | Total | |
| | | | a month | | | | | | a year | | | | | | | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Yes, but only large amounts | 19 | 19.2 | 19 | 19.2 | 33 | 33.3 | 8 | 8.1 | 16 | 16.2 | 1 | 1.0 | 3 | 3.0 | 99 | 58.9 |
| Yes – irrespective of amount | 4 | 6.0 | 12 | 17.9 | 12 | 17.9 | 10 | 14.9 | 23 | 34.3 | – | – | 6 | 9.0 | 67 | 39.9 |
| Rather not | – | – | – | – | – | – | – | – | 2 | 100.0 | – | – | – | – | 2 | 1.2 |
| Total | 23 | 13.7 | 31 | 18.5 | 45 | 26.8 | 18 | 10.7 | 41 | 24.4 | 1 | 0.6 | 9 | 5.4 | 168 | 100.0 |

their breasts regularly and during the correct phase of menstrual cycle, and those who performed the self-examination at any phase, would be similar to the fraction of regular self-examiners determined in our study. The knowledge of correct technique of the self-examination is of vital importance. Only 10.3% of the responders from Wroclaw were able to demonstrate the correct technique of self-examination, which should include supra- and infraclavicular area, and axillary fossa aside from the breast itself [9].

In order to improve existing prevention programs, one should identify the reasons behind such infrequent involvement of young women in this inexpensive and non-invasive examination. Additionally, the education activity of healthcare professionals should be intensified, as they are the ones who are mostly responsible for informing women about the necessity of the correct self-examination of breasts [11].

According to the American Cancer Society, everyday diet should contain wholegrain bread and 5 servings of vegetables and fruits. In contrast, consumption of red and processed meat should be reduced, as well as alcohol consumption [12]. As many as 92% of women participating in our study stated that vegetables exert positive effect on health, and 64.9% of the responders declared the necessity of reducing daily consumption of fat meat. Unfortunately, in the opinion of our participants, their diet is not sufficiently balanced to prevent various conditions.

Analysis of studies examining the influence of alcohol on the incidence of breast cancer in developed countries revealed that the consumption of spirits can contribute to 4% of cases of this malignancy [13].

Considerable percentage of our responders believed that alcohol exerts harmful health effects if consumed in large amounts. Although the majority of our participants declared drinking alcohol once a month, 19.2% of examined women admitted to consuming alcohol 4-6 times per week. This finding suggests that the issue of drinking alcohol by women cannot be ignored within the framework of oncological preventive programs.

Our study confirmed that the students of Tricity higher education institutions possess knowledge regarding self-examination of breasts and mammography. Nevertheless, one should emphasize during health counseling included in periodic check-ups that only the regular self-examination of breasts, performed correctly and during the proper phase of menstrual cycle, is efficient in the detection of breast lesions.

## CONCLUSIONS

1. The lack of breast self-examination habit among the students of Gdansk higher education institutions points to the inefficiency of existing education programs. Healthcare professionals, including nurses and midwives, should acknowledge this fact.
2. Health counseling with regard to screening programs should include information on the correct technique of breast self-examination during the proper phase of menstrual cycle.
3. Preventive programs should include information on the influence of alcohol and dietary factors on the incidence of cancers.

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