**SUMMARY**

**Knowledge level and health behavior of active nurses on prevention and early detection of breast cancer in women**

**Introduction.** Breast cancer is the most common malignancy in women and is a significant medical, social and economic problem. It most often affects women in the 50-69 age range, but is increasingly being diagnosed at younger ages. Of key importance in reducing morbidity and mortality is prevention and early detection of cancer, made possible by effective primary and secondary prevention and an adequate level of women's knowledge of breast cancer risk factors, disease symptoms and screening. Nurses play a multifaceted role in the prevention of breast cancer in women. Through their knowledge and health-promoting attitudes, as well as their close contact with patients, they educate and support women in preventive measures. In carrying out health education tasks, in addition to knowledge, they should present health-promoting behaviors, which can not only reduce the risk of breast cancer in this professional group, but also among other women.

**The purpose of the study** was to determine the level of knowledge and health behaviors of active nurses regarding the prevention and early detection of breast cancer in women.

**Material and methods.** The study was conducted between March 22, 2021 and September 30, 2022 in the following health care facilities: Podkarpacki Szpital Specjalistyczny Podkarpacki Ośrodek Onkologiczny im. Ks. Bronisław Markiewicz in Brzozów, Samodzielny Publiczny Zespole Opieki Zdrowotnej in Sanok, Samodzielny Publiczny Miejski Zespole Podstawowej Opieki Zdrowotnej in Sanok, Samodzielny Publiczny Zespole Opieki Zdrowotnej in Lesko. The study involved 650 nurses, employed by the above-mentioned health care entities, with 640 completely completed survey instruments analyzed. The average age of the respondents was 44.11, with the youngest woman being 25 and the oldest 70. Most of the respondents were married women (60.47%) and rural residents (65.78%), describing their financial situation as good (75.16%). The study group was far outnumbered by women with a university education (85.94%), working under a contract of employment (98.12%), most often in a conservative department (69.38%). The majority of respondents (77.97%) did not have an additional job, and most often worked in the profession for 5 years (30.16%) or 6 – 15 years (25.62%). In the surveyed group, the largest percentage, 34.22%, were childless women, followed by those with two children, 32.34%. The vast majority of respondents (97.97%) did not suffer from breast cancer, and the presence of this cancer in the family was declared by 9.22% of nurses. The study was conducted by a diagnostic survey method, using a questionnaire technique. The Author's Survey Questionnaire, the Health Behavior Inventory (HBI), the Multidimensional Health Locus of Control Scale (MHLC) and the Generalized Self-Efficacy Scale (GSES) were used as research tools. Statistical analysis was performed using R software, version 4.4.1. A significance level of p = 0.05 was adopted; all p-values below 0.05 were interpreted as indicating significant relationships.

**Results.** Respondents' knowledge of breast cancer and its prevention was at an average level (61.25%). The nurses were mostly familiar with the risk factors of breast cancer. They most often indicated: family history of breast cancer (79.53%), BRCA 1 and BRCA 2 gene mutations (57.66%), female gender (47.66%), childlessness (45.94%), age over 50 (40.00%), use of hormone replacement therapy (34.84%) and oral contraception (30.94%). Among the symptoms of breast cancer, the respondents most often mentioned: a change in the appearance of the nipple (75.62%), an irregular, hard lump in the breast parenchyma, usually not painful (74.84%), skin changes (47.81%), enlargement of the axillary lymph nodes (46.88%), as well as a change in the size, shape of the breast (39.69%). Respondents were familiar with the basic methods of detecting breast cancer, pointing most often to: breast ultrasound (93.28%), mammography (91.25%) and breast self-examination (86.56%). They were mostly knowledgeable about the principles of breast self-examination: frequency (79.06%), timing (77.19%) and stages (88.28%). They also knew the age at which women should perform a breast ultrasound (64.69%). More than half of the respondents (59.69%) correctly identified the age for free mammography, as part of the Population-Based Early Detection of Breast Cancer Program. The main sources of respondents' knowledge about breast cancer prevention were the Internet (63.44%) and medical books and magazines (62.50%). Similar in number, the groups of nurses rated their level of knowledge about breast cancer prevention as good (47.50%) and sufficient (42.34%), and the vast majority (84.53%) expressed a desire to expand their knowledge of this subject. Respondents mostly consumed alcohol occasionally Almost one in five (17.81%,) women were abstinent, and just over half (55.31%) of the respondents consumed alcohol occasionally. Respondents followed different types of diets – eating light meals was declared by 16.41% of respondents. The nurses most often spent 1 to 3 hours (34.53%) per week on physical activity, while almost one in five nurses (17.66%) did not engage in physical activity. More than half of the women surveyed (58.91%) gave birth to their first child between the ages of 20 and 30, and 41.56% of the nurses declared breastfeeding for at least 6 months. Almost half of the respondents (48.28%) performed breast self-examination once a month, and one in five (20.31%) did not. Almost all respondents (96.87%) attended follow-up visits to a gynecologist, most often once a year (49.69%). Respondents mostly (72.50%) did not have a mammogram. Nurses presented medium intensity of health behaviors – M = 81.32 (SD = 13.55). The highest mean value – M = 3.48 (SD = 0.7) was obtained in the preventive behavior category, while the lowest – M = 3.21 (SD = 0.63) in the health practices category. The nurses obtained the highest score – M = 25.04 (SD = 4.93) in the area of internal location of health control, compared to the case – M = 21.07 (SD = 5.38) and the influence of others – M = 20.74 (SD = 5.60). The mean value of the overall level of self-efficacy in the study group was M = 29.52 (SD = 4.71). The respondents' level of knowledge about breast cancer significantly differentiated the overall level of health behavior (p < 0.001), the location of health control in the internal dimension (p < 0.001) and high self-efficacy (p < 0.001). On the other hand, the factors significantly determining the level of knowledge and health behavior of the respondents in the field of breast cancer prevention were age, education, length of service, place of work and the occurrence of breast cancer in the respondents' family.

**Conclusions.** Nurses' knowledge of breast cancer prevention and the health behaviors they undertake are important, both for their health and for the effectiveness of educational measures taken towards patients. A high level of health awareness in nurses promotes the formation of responsible health-promoting attitudes, which translates into regular screening and taking preventive measures in professional practice. Thus, nurses, as an important link in the health care system, can effectively support the process of early detection of breast cancer and promote pro-healthy lifestyles among patients, which is crucial in reducing morbidity and mortality from this cancer. Research on nurses' knowledge and health behaviors regarding breast cancer prevention should be continued.

**Keywords:** breast cancer, nurses, knowledge, prevention, health behavior.