

The impact of demographic factors on the level of knowledge about primary and secondary prevention of cervical cancer among patients in Lublin voivodeship

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary Background. Cervical cancer (CC) is among the most-commonly detected cancers affecting women worldwide. The primary means of preventing CC is the Human Papillomavirus (HPV) vaccine. Moreover, CC can be detected early by a screening test, which is available free of charge in Poland for women in the 25–59 year-old age group (i.e., those at the greatest risk of CC).

Objectives. To assess the level of knowledge among patients in Lublin voivodeship, Poland, concerning both the primary and secondary prevention of CC; to analyze the impact of demographic factors on participation in CC screening.

Material and methods. The study was carried out on a group of patients ($n = 230$), who filled out a questionnaire including questions on the primary and secondary prevention of CC. Participation was voluntary and anonymous. The data was analyzed using Statistica 10.0 software (StatSoft, USA).

Results. It was shown that subjects from small towns and rural areas formed the largest group of women who indicated that they had fewer than one gynecological visit per year. 40% ($n = 28$) of the inhabitants of rural areas, 29% ($n = 9$) of the inhabitants of small towns and 70% ($n = 57$) of the inhabitants of cities reported that they had had a cytological test at least once in their life. 25% ($n = 57$) of all respondents had been vaccinated against HPV. Among rural inhabitants, 83% ($n = 58$) reported that they had not received a HPV vaccination.

Conclusions. Currently, the priority is to focus on prevention campaigns in rural areas and small towns, where the level of knowledge about the risk of CC is much lower than in larger cities.

Key words: primary prevention, secondary prevention, uterine cervical neoplasms.

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Background

Cervical cancer (CC) is among the most-commonly detected female cancers in the world. Over 400,000 women are diagnosed with CC every year worldwide [1]. In Poland, primary prevention of CC is based on bivalent (Cervarix) and quadrivalent (Silgard) Human Papillomavirus (HPV) vaccine. Cervarix prevents HPV genotype 16 and 18 infections and is used among girls and women, whereas Silgard protects against HPV genotypes 16 and 18, as well as against 6 and 11, which are strongly connected with HPV-induced lesions and can be used in both men and women. The best results are obtained when vaccination is provided prior to sexual initiation. Secondary prevention aims to decrease CC-associated mortality by performing a screening test – a pap smear test (cytological exam) – which is available free of charge triennially to Polish women in the at-risk age group (25–59 years old). The Polish Gynecological Society recommends that the screening test be performed once a year in the high risk group, and that screening is begun just after sexual initiation, or in cases where there has been no sexual initiation, after the age of 25 [2].

Objectives

The aim of the study was to assess the level of knowledge among patients in Lublin voivodeship about both primary

and secondary prevention of CC, and to analyze the impact of demographic factors on participation in CC screening and the level of patient awareness.

Material and methods

The study was performed in March 2016 in Lublin, Poland, on the basis of an anonymous questionnaire completed by the group of patients. The questionnaire included binary (yes/no) and semi close-ended questions about the prevention of CC, sexual behavior, knowledge of HPV infections, and general questions (age, place of residence). The participants were selected in a consulting room by the physicians responsible for gynecological checkups in three local community health centers in Lublin, which receives patients from all around Lublin voivodeship; the recruitment procedure was the same in each location. The inclusion criteria were age greater than 16 years old and written consent to participate in the study. The exclusion criteria were a documented history of CC in the past, a surgical history of “complete” hysterectomy, or a documented positive result for Human Immunodeficiency Virus Antibody (HIV Ab). Participation was voluntary and anonymous. Among the 284 questionnaires delivered, 255 (90%) were returned and 230 (81%) were correctly filled out and used for the statistical analysis. The aim of the recruitment was to obtain a pop-



ulation-based sample of gynecological patients in Lublin voivodeship, according to the age and place of residence.

The data were analyzed using Statistica 10.0 software (StatSoft, USA). The chi-squared test was used to determine whether there was a significant difference between the expected frequencies and the observed frequencies in categorical data categories; Spearman's rank correlation coefficient test was used to assess whether two parameters were correlated. A *p*-value of less than 0.05 was considered statistically significant.

Results

Most respondents fell into one of two groups: those who live in large cities with over 100,000 residents (35%, *n* = 81) and those who live in rural areas (30%, *n* = 70). Inhabitants of small towns (< 10,000 residents), medium towns (10,001–50,000 residents) and large towns (50,001–100,000 residents) also took part in the survey (Fig. 1).

Regarding the frequency of gynecological visits, 20% (*n* = 46) of patients reported that they go once a month, 29% (*n* = 67) once every three months, 21% (*n* = 48) once a year, and 30% (*n* = 69) less often than once a year. Examining the connection between the place of residence and the frequency of gynecological visits demonstrated that subjects from smaller towns and rural areas made up most of the women who had gynecological visits less often than once a year (59%, *n* = 41), as opposed to women from large cities ($\chi^2 = 28.72$; *p* = 0.004). Statistical evidence was found ($R = 0.49$; *p* = 0.000001) for a positive correlation between gynecological checkup frequency and pap smear test frequency. Our research indicates that 24% (*n* = 17) of respondents from rural areas reported that they had a cytology examination once per year, 11% (*n* = 8) once per six months and 10% (*n* = 7) once per three years. The inhabitants of large cities attended cytology screening tests once a year (43%, *n* = 35), once per six months (20%, *n* = 16) or once per three years (19%, *n* = 15). The less frequently a patient goes to the gynecologist, the later the first cytology is performed ($R = 0.46$; *p* = 0.000001). Furthermore, 26% (*n* = 60) of correspondents had never attended cytological screening, and only 40% (*n* = 28) of the inhabitants of rural areas and 29% (*n* = 9) of those from small cities had undergone a cytological exam at all during their life. However, 70% (*n* = 57) of the women who lived in large cities reported having undergone CC screening at least once in their life ($\chi^2 = 25.41$; *p* = 0.001). In the rural population, the first sexual experience took place at the age of 19–24 (20%, *n* = 14) or before (40%, *n* = 28) ($\chi^2 = 62.39$; *p* = 0.000001). In large cities, patients were either under 19 years old (44%, *n* = 31) or 19–24 years old (44%, *n* = 31) at the time of first sexual experience. Moreover, the highest percentage of respondents had their first pap smear test when they were 19–24 years old (33%, *n* = 76) or under 19 years old (27%, *n* = 62) ($\chi^2 = 103.6$; *p* = 0.000001). Considering the place of residence, 29% (*n* = 20) of rural inhabitants reported that they were under 19 years old at the time of their first cytological exam, whereas among inhabitants of large cities, the most commonly chosen answer was 19–24 years old ($\chi^2 = 25.41$; *p* = 0.001) (Fig. 2).

Among those respondents who did not have adequate knowledge of the importance of cytological examinations, almost a half (44%, *n* = 101) were from rural areas ($\chi^2 = 11.7$; *p* = 0.02). The majority of patients (79%, *n* = 181) knew that free cervical cytological tests are available in Poland. A positive correlation between such knowledge and frequency of cytological was observed ($R = 0.43$; *p* = 0.000001). Focusing on HPV vaccination, less than 25% (*n* = 57) of all respondents had been vaccinated. Furthermore, 83% (*n* = 58) of rural inhabitants indicated that they have not received an HPV vaccination by choosing the answer 'No' (46%, *n* = 32) or 'I don't remember' (37%, *n* = 26) ($\chi^2 = 41.72$; *p* = 0.000001). More than half of the participants (57%, *n* = 131) selected "No" or "I don't know" to the question about whether HPV infection has an impact on abnormal cervical cytological results. Additionally, the results showed a negative correlation between the population

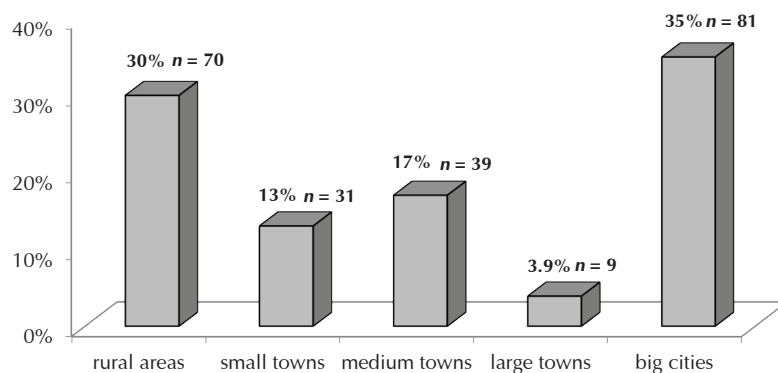


Figure 1. Place of residence

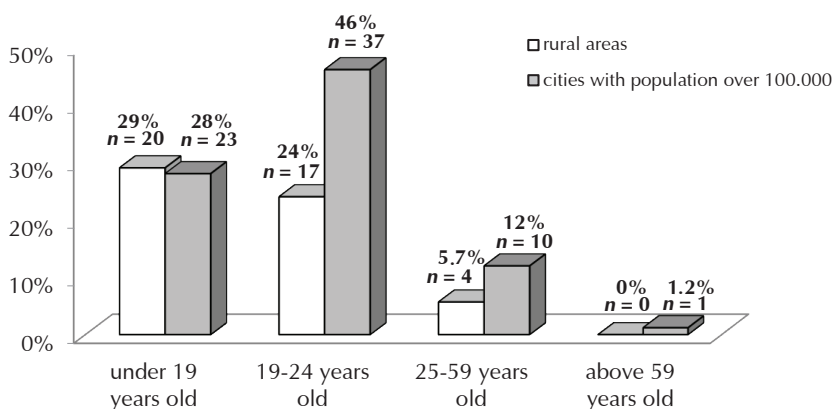


Figure 2. Age of patient at first cytological examination

of the place of residence and knowledge of the association between HPV infection and abnormal cervical cytological results ($R = -0.47$; $p = 0.000001$). Only 24% ($n = 55$) women had had an HPV test performed; the majority of these (65%, $n = 36$) lived in large cities ($\chi^2 = 47.01$; $p = 0.000001$).

Discussion

Our research showed that the percentage of women who are vaccinated against HPV is insufficient and that the levels of cervical screening for CC in Lublin voivodeship in low. Patients do not possess sufficient knowledge about the association between HPV and the higher risk of CC, and neither do they know that free pap smear tests are available. Despite the wide availability of CC screening and the large advertising campaigns encouraging women to avail of the test, Poland has one of the highest levels of female mortality from CC in Europe [3]. This high mortality rate is associated with the low level of detection of CC in its early stages. Our results are in line with those of Szadowska-Szlachetka et al. [4], which show that approximately 21% of correspondents have never attended CC screening. According to Spaczyński et al., this failure is caused by low awareness of female health issues [5], as can be seen in our findings. Furthermore, the results provoke the question of whether there is sufficient availability of health care for those living on the periphery. The relative rarity of cervical cytological examinations in small towns and in rural areas might be associated with access to gynecologists being more difficult, with insufficient education, and with lower patient budgets than in the case of inhabitants of large cities. The results of our study agree with those of Spaczyński et al., who showed that the frequency of screening differs significantly by place of residence [6].

Given that gynecological visits are often regarded as unpleasant, it might be appropriate for the primary care physician to play a stronger role in the prevention of CC. The interesting approach employed in the Australian health system gives both general practitioners and nurses an important role in disease prevention programs [7]. In particular, the general practitioner plays a crucial role in precancerous prophylaxis by providing education about the healthy lifestyle and the elimination of risk factors.

Another idea for increasing patients' awareness is the use of mass media. The research of Szadowska-Szlachetka

et al. demonstrated that mass media is the main source of information about cervical cancer prevention [4]. An intense cervical cancer prevention campaign in mass media (Internet, TV, radio), employing widely-known participants such as celebrities or experts, may serve as an alternative in communities where the availability of physicians is limited [8].

Biała et al. also reported unsatisfactory levels of patients receiving HPV vaccinations [9]. The main problem with HPV vaccination may be its cost. In Poland, the vaccination is recommended but not obligatory; the patient thus pays the full cost of the vaccine. Nevertheless, some communities have introduced a vaccine program for their inhabitants. An example of this in Lublin voivodeship is be Włodawa community, which provides free vaccinations to female adolescents [10]. It is important to remember that, despite the high resistance to HPV infection that is granted by the vaccination, screening should be continued. Unfortunately, only 48% of the patients we surveyed were aware of this. Our findings here do not correspond with the results of Szadowska-Szlachetka et al, who found that 81% of correspondents in Lublin voivodeship are aware of the need for continuous screening after HPV vaccination [4].

Limitations of the study

Although this study has achieved its aim, we are aware of its limitations, such as the limited number of correctly completed questionnaires, the specific recruitment strategy, and the experience and skills of the researchers. We attribute the difference between our findings and those of other similar studies to the different populations. Moreover, some difficulties were seen in filling out and returning the questionnaires correctly.

Conclusions

The level of knowledge of the women who took part in the study can be said to be average or rather unsatisfying. A high level of education on the prevention of CC is the key to minimizing the risk of diagnosing a cancer only when it has reached the incurable stage. It must be emphasized that place of residence is a strong factor influencing take up of CC screening tests; for this reason, the current priority should be to focus on CC prevention campaigns in rural areas and small towns, where the number of vaccinated patients and the level of awareness is much lower than in large cities.

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