

## Knowledge of young Polish women of human papillomavirus (HPV) infection and cervical cancer prevention

### Wiedza młodych Polek na temat zakażenia ludzkim wirusem brodawczaka (HPV) i profilaktyki raka szyjki macicy

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(d) statistical analysis

#### ABSTRACT

**Introduction.** HPV infection is the most frequent sexually transmitted disease and a major epidemiological problem in the world. HPV 16 and HPV 18 are responsible for over 70.0% cases of cervical cancer. The aim of this study was to evaluate the knowledge of young women concerning HPV infection as well as possibilities of cervical cancer prevention. Moreover, the study had to determine which groups of young women especially required educational campaigns.

**Material and methods.** The questionnaire survey was carried out among 126 young Polish women aged 18–35. The results were statistically analyzed.

**Results.** The survey found that 41.3% women had heard about HPV before interview. Nearly 38.5% of women correctly indicated the occurrence of cancer which is associated with HPV infection. About 23.0% of women received a vaccination against HPV, only 19.2% of women correctly identified who should be subjected to vaccination. The best knowledge about cervical cancer and disease prevention was manifested among female university graduates and groups living in urban areas. Those women also more often underwent cytological screening.

**Conclusions.** Educational campaigns should particularly include group of women living in the rural areas and women with primary and secondary education.

**Key words:** awareness, epidemiology, sexually transmitted diseases, carcinogenesis

#### STRESZCZENIE

**Wstęp.** Zakażenia HPV są najbardziej powszechną infekcją przenoszoną drogą płciową i stanowią istotny problem epidemiologiczny na świecie. Za ponad 70,0% zachorowań na raka szyjki macicy odpowiada zakażenie HPV 16 oraz HPV 18. Celem pracy była ocena wiedzy młodych kobiet na temat zakażenia HPV oraz możliwości profilaktyki raka szyjki macicy. Ponadto badanie miało na celu wykazanie, w których grupach młodych kobiet istnieje szczególna potrzeba prowadzenia działań edukacyjnych na temat profilaktyki.

**Materiał i metody.** Badaniu ankietowemu poddano 126 kobiet w wieku 18–35 lat. Uzyskane wyniki poddano analizie statystycznej.

**Wyniki.** W przeprowadzonym badaniu 41,3% kobiet zadeklarowało, że słyszało wcześniej o HPV. Blisko 38,5% kobiet poprawnie wskazało do wystąpienia jakiegoś nowotworu predysponuje zakażenie HPV. Jedynie 23,0% kobiet poddało się szczepieniu przeciwko HPV, zaś 19,2% kobiet potrafi poprawnie wskazać kto powinien być poddawany szczepieniom. Większą wiedzą na temat HPV oraz szczepień charakteryzowały się kobiety z wyższym wykształceniem oraz mieszkanki miast. Kobiety te również częściej korzystały z bezpłatnych badań cytologicznych.

**Wnioski.** Brak wystarczającej wiedzy na temat HPV i profilaktyki raka szyjki macicy charakteryzował kobiety zamieszkujące obszary wiejskie, dlatego też na te grupy powinno zwrócić się szczególną uwagę w szerzeniu działań profilaktycznych.

**Słowa kluczowe:** świadomość, epidemiologia, choroby przenoszone drogą płciową, nowotwory

## INTRODUCTION

HPV infection is the most frequent sexually transmitted disease and a major epidemiological problem in the world. Nearly 80% of sexually active women and men will get HPV infection at some point in their lives. Half of them are women and men aged 15–25 [1]. Human papillomavirus (HPV) belongs to the Papillomaviridae family, which includes more than 100 types. There are oncogenic and non-oncogenic types of HPV. Oncogenic viruses can cause low-grade cervical cell abnormalities or high-grade cervical cell abnormalities that are precursors to anogenital cancers and throat (pharyngeal and laryngeal) cancer. Infection with a high-risk HPV type is considered necessary for the development of cervical cancer, HPV 16 and HPV 18 are responsible for over 70.0% cases. Other factors like viruses (e.g. *Herpes Simplex Virus 2* – HSV-2), bacteria (e.g. *Chlamydia trachomatis*), environmental issues and women's health may also be involved in carcinogenesis [2]. The risk of HPV infection increases with early initiation of sexual intercourse, numbers of sexual partners, HIV infection or other infections that impair the function of the immune system, smoking, low economic status, and number of pregnancies and births [3]. Cervical cancer is the fourth most common cancer affecting women throughout the world. In the group of women aged 15–44 it is the second in terms of morbidity and mortality [4]. Cervical cancer is the sixth most common cause of cancer among Polish women and seventh in terms of mortality. Each year nearly 1700 women die and over 3000 new cases of cervical cancer are reported in Poland (according to the Polish National Cancer Registry, data from 2010). For the years 1980–2010 Poland has observed a decrease in morbidity and mortality from the cervical cancer, but this is unsatisfactory, because Poland still has one of the highest mortality rates in Europe [5].

Primary prevention includes vaccinations. There are two vaccines: a quadrivalent Silgard (HPV types 6, 11, 16, 18) and bivalent Cervarix (HPV types 16 and 18), recommended by the Ministry of Health in the Polish Immunization Program since March 2008. Some local governments offer free vaccinations against HPV to initiate and maintain effective preventive programs. The secondary prevention is cytological screening. Cervical cytology is classified by the Bethesda system.

The aim of this study was to evaluate the knowledge of young women concerning HPV infection as well as possibilities of cervical cancer prevention. Moreover, the study has to determine which groups

of young women especially required educational campaigns.

## MATERIAL AND METHODS

The study was conducted at the turn of January and February 2014. It was based on the author's questionnaire set on the Internet, which included 15 questions.

The questionnaire survey was carried out among 126 young Polish women aged 18–35. The respondents were divided into groups based on: place of residence (63.5% – urban areas, 37.5% – rural areas) and education (28.6% – university-graduated, 61.9% – secondary education, 9.5% – primary education). The results were statistically analyzed by chi-square test. The significance level was  $p < 0.05$  indicating a statistically significant difference.

## RESULTS

The survey found that 41,3% women had heard about HPV before interview (table I).

Table I. The group of women, who had heard about HPV  
Tabela I. Grupa badanych, które słyszały wcześniej o HPV

Characteristic	N	%
Education:		
– University-Graduated	27	51.9%
– Secondary	25	48.1%
– Primary	0	0.0%
Place of Residence:		
– Urban Areas	36	69.2%
– Rural Areas	16	30.8%

The most common source of information was the Internet 42.3%, other sources were: doctors 26.9%, leaflets 15.4%, family/friends 15.4%. Only 48.0% of respondents gave correct answer to the question which path is transmitted HPV. The chi-square statistic showed that significantly lower percentage of correct answers indicated women with secondary education compared to university-graduated group ( $p = 0.005$ ). In addition, a higher percentage of correct answers gave women living in the urban areas than group from the rural areas ( $p = 0.003$ ). About 38.5% of women correctly indicated the occurrence of cancer which is associated with HPV infection. Significantly higher percentage of correct answers

gave as above university-graduated groups rather than women with secondary education ( $p=0.038$ ) and women living in the urban areas compared to a group from the rural areas ( $p=0.002$ ). Nearly 23.0% of women had received a vaccination against HPV, and only 19.2% of women correctly identified who should be subjected to vaccination. Statistical analysis showed significantly higher knowledge about vaccinations among women living in the urban areas compared to women living in the rural areas ( $p=0.001$ ). The correctness of this answer showed no difference with respondent's education. Nearly 27.0% of women answered that they had been informed by the physician about the possibility of vaccination against HPV. In the group of women aged 25–35 (table II) 15.8% said that they underwent free cytological screening.

Table II. The group of women aged 25–35  
Tabela II. Grupa kobiet w wieku 25–35 lat

Characteristic	N	%
Education:		
– University-Graduated	28	36.8%
– Secondary	38	50.0%
– Primary	10	13.2%
Place of Residence:		
– Urban Areas	39	51.3%
– Rural Areas	37	48.7%

As the most common cause of failure respondents indicated: lack of time – 29.7%. Nearly 17.2% of women declared that they do not like to be examined; 21.9% do not see the need for medical examination; 3.1% indicated too distant consulting rooms; and 28.1% visit private gynecological consulting rooms. Nearly 61.3% of women do not know for what purpose cervical screening is performed. Statistical analysis showed that knowledge of respondents living in the urban areas was significantly higher than women living in the rural areas ( $p=0.001$ ). In addition, female university graduates gave a significantly higher percentage of correct answers than did respondents with secondary education only ( $p=0.001$ ).

## DISCUSSION

In 2010 screening for cervical cancer included only 27.0% of the target population in Poland [6]. The system based on secondary prevention is not

effective in Poland because so few women benefit from the free cervical screening. The leaders in Europe in screening for cervical cancer are the Scandinavian countries. They began in the 60s of the last century, and in the mid-70s organized a screening including the all target population. Nowadays, these countries have one of the lowest rates of morbidity and mortality of cervical cancer in Europe [7]. However, there is little information in available literature about the studies evaluating the knowledge Scandinavia inhabitants about human papillomavirus. According to Øren A. and others, study conducted in 1998–2000, including 898 Norwegian women aged 16–24, showed that only 20.0% of them had heard about HPV before interview, while only 15.0% correctly indicated the occurrence of cancer which is associated with HPV infection [8]. In turn, cohort study from 2004–2005 conducted on nearly 70 thousand women from Nordic countries (Denmark, Iceland, Norway, Sweden) by Nøhr B. and others, shows that nearly 75.0% of women have never heard about HPV [9]. The results of this study may be surprising, given the fact, that Norway has one of the lowest rates in terms of morbidity and mortality of cervical cancer in Europe. However, rates of morbidity and mortality of cervical cancer depend on women's participation in prevention. In Poland although the screening program has been implemented since 2004, despite many advertising campaigns encouraging women to participate in cytology, reportability is very low. The study shows that only 15.8% of women benefit from the free cytological screening, and over 60.0% do not know for what purpose it is performed. According to Paśławska A. and others 65.0% of women said that they had at least once cytology in their lives and more than half of them had done it in the past year, while 90.2% knew the importance of cytological screening in the early detection of cervical cancer [10]. These results indicate uneven participation of Polish women in prevention and varying knowledge of the importance of screening in detecting cervical cancer. There is a need for educational programs promoting knowledge about prevention. Low public awareness about HPV infection and methods of prevention entails negative consequences: each year in Poland there are more than 3,000 new cases of cervical cancer – most of them are in the advanced stages of cancer, and about 1,700 deaths. The solution could be the introduction of mandatory vaccination against HPV, to reduce the rates of morbidity and mortality of cervical cancer in the future. The fact that prevention is better than cure, may also prove economic considerations. Mandatory primary

prevention would reduce the cost of procedures that verify abnormal cytology, the cost of cancer treatment and related indirect costs, such as layoffs, pension. Also other European countries struggling with cervical cancer decided to introduce mandatory primary prevention, such as Romania in 2008 [11]. Currently, few women in Poland are vaccinated against HPV, in this situation both women and men should be subjected to vaccination, but according to this study awareness of who should be subjected to prevention is insufficient. It is worth saying that only 28.0% of women answered that they had been informed by the physician about the possibility of vaccination against HPV. This indicates improper part of physicians in promoting knowledge of HPV prevention. The main problem is in the rural areas. The results are alarming. This requires promoting the prevention of cervical cancer, as well as raise of awareness about HPV infection and health education.

## CONCLUSIONS

The study showed that the best knowledge about cervical cancer and disease prevention was manifested among female university graduates and groups living in the urban areas.

Educational campaigns should particularly include group of women living in the rural areas and women with primary and secondary education.

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