

Knowledge about and attitudes to Pap smears, cervical cancer and human papillomavirus among women in Slovenia

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Summary

High-risk human papillomaviruses (HPV) play a vital role in the development of precancerous changes or cancer in the uterine cervix. Prophylactic vaccination has proven to be an effective measure to reduce the incidence of precancerous changes in the uterine cervix and thereby also of cervical cancer. A population investigation was performed in Slovenia with the aim of determining the level of knowledge and awareness of women about cervical cancer, Pap test, HPV infection and preventive vaccination. The investigation was executed by computer-aided telephone inquiry in the period from 5-22 September 2006 on a sample of 500 women aged from 18 to 55 years from all regions of Slovenia. From the results it may be concluded that, in Slovenia, there is an urgent need to provide the lay population and medical community with relevant and accurate information on HPV infection, on early detection of cervical cancer and preventive vaccination.

Key words: Knowledge; HPV infection; Pap test; HPV vaccination.

Introduction

Cervical cancer is ranked second among the most frequent female cancers in the world. Every year, half a million women of the worldwide female population develop cervical cancer and half of them die of cervical cancer. In developed countries, the incidence of cervical cancer is significantly lower than elsewhere in the world, which is mainly due to screening programs using the Pap test. Screening for cervical cancer has considerably reduced the disease-related death rate. Cervical cancer screening utilizing the cervical smear test is one of the oldest methods of cervical cancer prevention; however, it has some short comings that may result from inadequate sampling of a cervical smear, inadequate smear preparation and fixation, and from biased slide reading. Evidence that high-risk human papillomavirus (HPV) plays a vital role in the development of precancerous changes or cancer of the uterine cervix is important and has had a strong influence on the execution of a number of research studies on cervical cancer detection by using HPV testing as well as on the prevention by HPV vaccination [1, 2].

From epidemiological research studies of HPV prevalence and from clinical studies of infections with high-risk HPV and related diseases of the uterine cervix, the following conclusions may be drawn: (i) high-risk HPV is present in more than 99% of all cervical cancer cases; (ii) persistent infection with high-risk HPV is the main cause of invasive cervical cancer development; (iii) the negative prognostic value of the HPV test is rather high, particularly in cases of negative Pap test results (> 99%); (iv) the HPV test has higher sensitivity for detecting pathologic changes in the uterine cervix than the Pap test; and, (v) flow-cytometry methods also allow the determination of high-risk HPV.

The above statements were used as criteria for controlling the applicability of the HPV test in primary screening for cervical cancer (as an independent test or in combination with the Pap smear test), in triaging the women with initial pathologic abnormalities in cervical smears and after the treatment of precancerous changes in the uterine cervix to detect the symptoms of persistent or recurrent disease. Prophylactic vaccination against HPV 6, 11, 16 and 18, which has been already introduced in Slovenia and in several countries worldwide, has proven to be an effective measure to reduce the incidence of precancerous changes in the uterine cervix and thereby also cervical cancer [4]. Currently, licenses for medical use of bivalent vaccine against HPV 16 and 18 are in the process of being granted by appropriate authorities. According to the research results, this vaccine is a promising agent in the prevention of pathologic abnormalities in the uterine cervix [5].

News about preventive vaccination against cervical cancer and HPV infection has aroused great interest in HPV in general, in the influence of HPV infection on the development of precancerous changes, of cancer of the uterine cervix and other diseases, and in the risk of sexually transmitted HPV infection and its incidence. Due to the lack of information, curious questions arise among women, doctors and other medical staff. From the research results that have been published so far, it could be noted that the level of knowledge and awareness of the population about HPV varies from country to country; there is thus an urgent need to determine this level of knowledge and awareness in each country to be able to provide the population in each individual country with adequate information that is lacking and to select the proper target group which is most in need of information.

The investigation on the population was performed in Slovenia with the aim of determining the level of knowledge and awareness of women about cervical cancer, the Pap test, HPV infection and preventive vaccination.

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Materials and Methods

Our investigation was executed by computer-aided telephone inquiry in the period from 5-22 September, 2006 on a sample of 500 women aged from 18 to 55 years from all regions of Slovenia (Table 1). They were divided into four age groups: 18-24 years (17%), 25-34 years (26%), 35-44 years (27%), and 45-55 years (30%). Out of the total of 500 women, 76% were married or had a permanent relationship with a man, 19% had completed primary school or had obtained vocational qualification, 50% had completed secondary school and 31% had a college or university degree; 34% were nulliparous, while others had one, two or three children, mainly two (37%).

The data were processed by descriptive epidemiological methods. The Mantel-Haenszel chi-square and Fischer's p tests were used to evaluate statistical significance.

Table 1. — Epidemiologic characteristics of the women under investigation.

Epidemiologic characteristics of the women under investigation	Total number	Percentage (no. = 100%)
<i>Age group (years)</i>		
18-24	84	16.8%
25-34	131	26.2%
35-44	135	27%
45-55	150	30%
<i>Marital status</i>		
Married/living with a partner	380	76%
Single	105	21%
Divorced/widowed	15	3%
<i>Education</i>		
Primary school or vocational education	93	18.6%
Secondary school	250	50%
College, university degree or higher degree	157	31.4%
<i>Number of children</i>		
0	169	33.8%
1	101	20.2%
2	187	37.4%
3 or more	43	8.6%

Results

Knowledge about the Pap test and cervical cancer

The question on what the Pap test is used for was correctly answered by 78% of the women included in the investigation. One third or almost half of the women believed that the Pap test was also used to detect other gynecological diseases; 59.8% were convinced that the Pap test was a method to detect any gynecological cancer in general, 42.6% claimed that the test detected inflammation and/or infections of the sexual organs, and 37.4% were convinced that the Pap test could also detect sexually transmitted infections. As much as 12.2% of the women did not know at all what the Pap test was used for. The women from the 45-55-year age group were better informed about the Pap test than the women from the 18-24 year age group (p = 0.008). The percentage of women who believed that the test could also detect inflammation and/or infections of the sexual organs was higher among those with a primary school education than among those with a university education (p = 0.005).

Personal opinions about cervical cancer risk

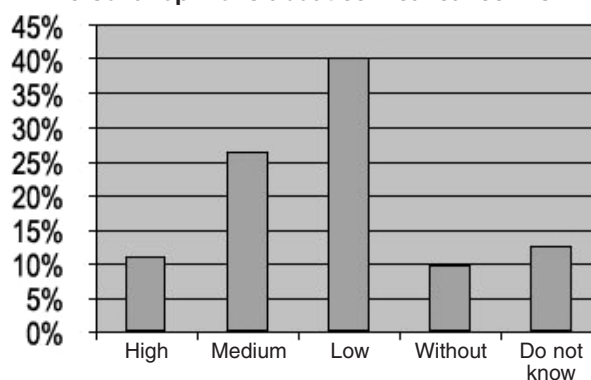


Figure 1. — Personal risk of cervical cancer as estimated by the group of women under investigation.

The women included in the investigation said that of all female cancers they were most aware of breast cancer (99.4%), followed by cervical cancer (98.8%), ovarian cancer (95.2%), uterine cancer (89.2%), cancer of the external genitals (66.0%), vaginal cancer (46.2%), and other diseases (0.4%). According to the women in our study, the strongest risk factors for developing cervical cancer were familial, poor genital hygiene, poor genital hygiene of a male partner, and three or more pregnancies (and childbirths). Weaker risk factors included – according to their view point – smoking, old age, poor nutrition habits, sexual intercourse, sexual intercourse without penetration, neglecting regular physical training, long-term use of contraceptive drugs, and the least risk was posed by changing sexual partners.

From the women interviewed in our study, 50.1% were convinced that they were not at risk or at very low risk of developing cervical cancer (Figure 1). Only 10.9% of women assumed that they were at high risk for developing cervical cancer and added that, most likely, the risk was the highest in the 36-45-year age group whereas 12.7% of women replied that they were not at all at risk for cervical cancer. This last belief prevailed in the women of the 45-55-year age group (16.2%).

The question as to whether they knew what the causes of cervical cancer were, was imprecisely answered by 67.7% of women with a primary school (72.7%) or vocational education (85.1%) who said that they did not know exactly. The causes of cancer most frequently mentioned by the women in the study were: changing sexual partners (22.3%), non-defined infections (19.6%), heredity (13.5%), HPV (10.8%), and untreated inflammations (10.1%). Possible protection measures to be used against cervical cancer were known to 42.7% of women (mostly to those with a university education), whereas the remaining 66.3% of women had never heard of such measures.

Out of the total of 500 women in the study, 78 had never had a Pap test. Of these 78 women, 39 were aged between 18 and 24 years, 14 between 25 and 34, 15 between 35 and 44, and ten between 45 and 55; as may

be seen, 6.7% of the women from the 45-55-year age group had never had a Pap test. The women from the 18-24-year age group (51.3%) said as an excuse that they were too young to undergo the test, that they did not have any gynecological problems (20.5%), that they were not sexually active, or did not have a permanent partner. For the women over 25 years of age, the most frequent pretexts for evading a Pap test were that they did not have a permanent partner, that they did not have any gynecological problems, or that they were not sexually active, and the women from the 45-55-year age group stated, in addition to other excuses, that they were too old.

Out of the 500 women included in the study, 422 had had a Pap test; 46% of these had had the first test before the age of 20, 38.3% before the age of 30, 11.7% before the age of 40, and 3.7% after the age of 40. From the women who decided to have Pap tests performed, 67.9% did so because of their belief that the test is a necessary health measure, 27.3% on the advice of their family doctor, 3.6% upon official recommendations, and 1.2% upon the advice of a friend or family member. Almost half of the women were informed that Slovenian gynecologists recommended having the Pap smear test every three years and 20% did not know how often the test should be performed. A comparison of age and education of the women did not reveal any significant differences. Of the women who had had the Pap test, 34.7% discussed the test results with their gynecologist or other medical specialist; 30.2% fully understood the information on the test results, 13.4% declared that the information was not clear, and 5.5% did not understand the information at all. During the gynecological examination and collection of cervical smear sample, 59.7% of the women did not experience any discomfort, 33.6% reported minor discomfort, and 6.7% complained of serious discomfort.

Of 477 women who had already had sexual intercourse, 4% experienced the first intercourse with a man before the age of 15, 59.1% between the age of 16 and 18 years, 34.0% between 19 and 25 years, and 1.3% between the age of 26 and 35 years; 1.7% of the women did not wish to answer that question; 35.3% of the women had had only one sexual partner, 18.3% two, 16.4% three, 7.6% four, and 16.6% of the women had had five or more partners. Among the women who had five or more partners, the majority were nulliparous, aged between 25 and 34 years. Of the interviewed women, 4.4% did not wish to answer that question. In the previous two years, 85.5% of women had had a single partner, 5.7% had two, and 1.8% had three or more partners, whereas 3.4% of the women did not wish to answer that question.

Knowledge about HPV

Among the viruses that the women interviewed in the study were informed of, the best known were HIV, influenza virus, herpes simplex virus, and HPV, which was known to around two-thirds of the women in the study (Figure 2). HPV was best known by the women in

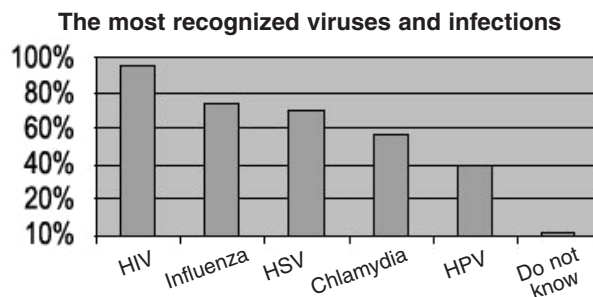


Figure 2. — Viruses and bacteria best known by the group of women under investigation.

the 25-34-year age group (51.9%) and to those with a university education (64.9%). The answer to the question as to what HPV could cause, posed to 198 women who claimed that they understood HPV, was cervical cancer (37.9%), genital warts (21.2%), endometrial cancer, ovarian cancer or herpes (less than 10%). The percentage of women who knew that HPV could cause cervical cancer was the highest among the women with a university education (54.1%) and the lowest among those who had obtained vocational qualification or completed secondary school (28.4%); 36.4% of the women who knew that HPV could cause genital warts had a primary education. Considering the ages of the interviewed women, there were no significant differences among their answers. A little less than half of them (44.8%) were informed that there are several types of HPV. Out of 47 women who knew what the cause and effect relation was between HPV and cervical cancer, 88.9% – predominantly those of younger age and with university education – were acquainted with the data that cervical cancer is caused only by a particular HPV, and 11.1% believed that all HPV types could cause cervical cancer. As much as 59.8% of the women did not know at which age women were most susceptible to HPV infection, with more than 10% of the answers claiming that these were the women in the following three age groups: under 14 years of age, between 26 and 35 years, and between 36 and 45 years. The question as to whether they knew that vaccines against HPV infection were being developed was answered positively by 36.5% of women.

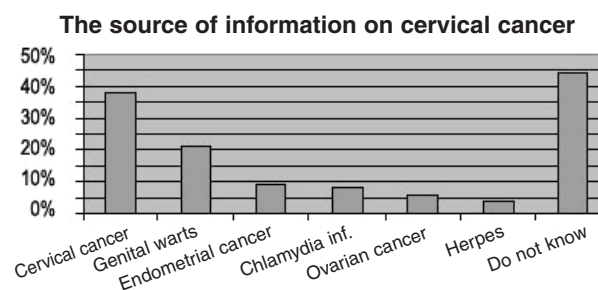


Figure 3. — Diseases that, according to the opinion of the group of women under investigation are caused by HPV.

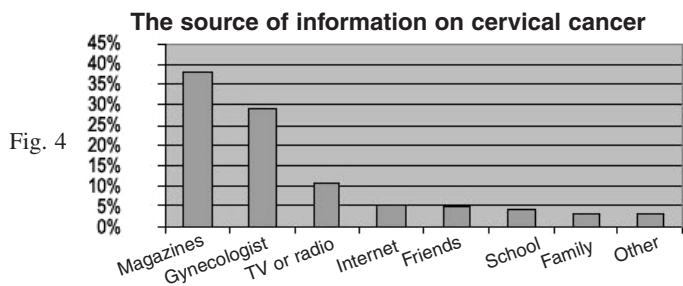


Fig. 4

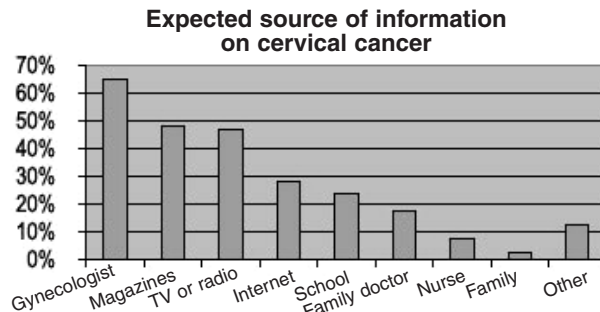


Fig. 5

Figure 4. — Sources of information about cervical cancer.

Figure 5. — Sources of information about cervical cancer that should according to the opinion of the women under investigation supply more information.

Source of Information

The women included in the investigation mentioned that the key sources of information were women's magazines, the gynecologist, TV and radio programs (Figure 4). The articles published in magazines were an important source of information for women with a college (47.6%) or university degree (39.4%). The advice by a gynecologist was considered as a key source of information by the women with a primary education (45.5%) and vocational qualification (40.4%). Considering the age of the interviewed women, there were no significant differences among their beliefs as to which source was the most important. In general, women could get the relevant information at a gynecologist's office at the age of 25 or over, whereas the information from the press, internet or family members was usually sought by younger women aged between 18 and 24 years.

As a rule, women preferred to have more information from their gynecologist than from women's magazines and, lastly, from TV programs (Figure 5).

The most frequent topics of the talks between gynecologists and their patients are the need for regular gynecological examinations (92.4%), contraception (90.2%), pregnancy (80.2), menstrual problems (72.2%), Pap test results (70.6%), other gynecological problems 43.8%), sexually transmitted infections (37.0%) and menopause (25.6%). Age distribution corresponded to the health topics typical for each particular age group of patients.

During the session with their gynecologist, 46.8% of the women in the study asked questions about the procedure of the HPV test, 12.4% about the causes of the development of cervical cancer, and 6.2% about HPV infection.

Discussion

In comparison to the majority of published data that reflect the level of knowledge and awareness of adolescents, students and young people in general, the results of our research included responses from a wider age group of women, i.e., those aged between 18 and 55 years [6-8]. Considering long-term screening for cervical cancer in Slovenia by using the Pap test, a high percentage of accurate answers to the question about the use of Pap testing was obvious. A lack of knowledge was evident in

the group of individuals who answered that the Pap test is used to detect a number of other diseases. In our study as well as other studies, the level of education proved to be a significant indicator of knowledge and awareness about the Pap test. It may be alarming that girls aged over 18 years are less interested in the importance of the Pap test than women aged over 45 years, which might be a proof of inadequate education of young women about the importance of the test. A similarly high importance may be attached to the fact that the majority of interviewed women were convinced that they were not at all at risk of developing cervical cancer and only 10% thought that they could be at high risk of developing cervical cancer. In a recently published study performed on 204 Brazilian women aged between 16 and 23 years, 42% considered themselves as being at high risk for sexually transmitted infections and thereby also for cervical cancer [9]. As much as two-thirds of the interviewed women from our investigation did not know what the possible causes of cervical cancer were and which risk factors were most influential. Nevertheless, the majority of Slovenian women (over 90%) were aware that it is urgent to have gynecological checkups and Pap smear tests performed regularly, though barely half of them knew how often the smear test should be performed. A considerably large percentage of the women from our investigation, who were insufficiently aware of the high risk for developing cervical cancer or virtually convinced of its absence, might serve as an explanation as to why the responsiveness to the formally organized screening program for the detection of cervical cancer has been and is still not satisfactory, particularly among the women in the 45 to 55-year age group. This is also further supported by a recent estimation that 6.7% of women in the same age group had not had a Pap test. Their main excuses for declining a Pap test were discomfort and fear of pain during the gynecological examination [9].

Of the woman interviewed in our study, 39% knew what HPV was, and of these, 59.1% were informed that HPV could cause the development of cervical cancer and/or genital warts. The majority of women who were informed about HPV vaccination were those with a higher education, whereas no statistical significance was

noted among the age groups of the women who were acquainted with HPV. This smaller half of the interviewed women who were informed about HPV also knew that there were several types of HPV, each targeting a different age group of women. Only one-third of all women from the study knew that a vaccine against HPV infection was being developed. The results of analogous interviews made elsewhere reported similar results [6, 9]. A great majority of parents who are considering whether or not to protect their children against HPV infection by vaccination are most interested in learning more about HPV and cervical cancer. However, even though it appears that they lack information, this should not be the key factor on which their decision regarding vaccination would depend [10, 11].

Sources of information about cervical cancer, HPV and related issues are of paramount importance [12]. Articles in women's magazines, a talk with the gynecologist, TV and radio educational programs are the major sources of information available to Slovenian women. The articles in magazines and radio and TV programs have a key role in spreading information among the lay population. Although recently numerous articles on HPV and vaccination against it have appeared in magazines intended for the lay public, it has been often noted that articles dealing with the association of HPV and cervical cancer appear to be missing [13]. The data accessible on the Internet may sometimes be misleading; however, the Internet as a source of information is gaining in importance, particularly for young women aged over 18 years.

The results of our investigation show that the information on HPV supplied by schools is scarce; this should certainly be a challenge to all those preparing school curriculum in Slovenia. According to our results, women would like to have more information from their gynecologist or general practitioner – again a challenge to this group of medical doctors to spare more time for talking with female patients about HPV and/or vaccination against HPV, thereby also highlighting the need of further instruction for general practitioners and gynecologists about these matters. The results of the investigation on the level of the knowledge of Slovenian women about the Pap test also indicate that gynecologists spare too little time to talk with patients about cervical cancer. Less than half of the women from our study had the chance to talk about the Pap test with their gynecologists, and only a third of these women discussed the last test results with their doctor. Moreover, the value of the quality of information may be realized from the following data obtained from the study: the gynecologist's report based on the Pap test results was understood by only one-third of the patients; one-fifth of the patients considered the report as partly understandable or completely incomprehensible. Surprisingly, some women neither expected nor wished to be informed by nurses, pharmacists, or by family members or friends; likewise, some women did not wish to talk about the most intimate details, e.g., how many sex partners they had had or when they had had the first

sexual intercourse. Therefore, the answers to these kinds of questions should be considered as possibly biased, particularly if they are included in the mere core of the investigation.

Conclusions

From the results of our investigation and of other studies on HPV it may be concluded that there is an urgent need to provide the lay population and medical community with relevant and accurate information on HPV infection, on early and effective detection of precancerous changes of the uterine cervix, and thereby also on cancer [6], safe sex practices, prevention of HPV infections, genital warts and preventive vaccination. The key point is to achieve a high-level of knowledge and awareness of HPV risk among women as well as men. Particularly women often associate HPV infection with inexorable development of cervical cancer. They refuse to understand that HPV infection is a transient infection and often does not distinguish between the roles of HPV and Pap tests. They often mistakenly consider that the Pap test that detects precancerous changes of the uterine cervix is a predictive factor for HPV infection and that it can differentiate among different HPV subtypes and genotypes. Hence, there is no excuse for the reluctance and unnecessary doubts, accusations and fear that young women are experiencing in relation to HPV infections, not even that the time is too short to supply them with adequate advice, education and important facts about HPV and being simply negligent in respect to warning them about the risk of sexually transmitted infection with HPV [7, 8].

Care should be taken that healthcare staff should also be additionally trained and educated to obtain a higher level of knowledge and awareness of the risk of HPV infection [6, 14]. We will gather fresh data on the awareness of the risk of HPV infection with further and more extensive investigations. By launching the information to target groups and also the data that have been missed we can achieve a higher responsiveness to the screening program, thus also assuring better success of prophylactic vaccination against HPV infection [15, 16].

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