

Attitudes and beliefs of women about the factors responsible for the development of cervical carcinoma

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SUMMARY

Background: To determine the level of knowledge among women about factors responsible for the development of cervix carcinoma and the necessity of education and health promotion.

Methods: Three groups of women were interviewed according to measuring instruments by the specially created questionnaire for this research. The statistically significant difference in answers was determined by the ANOVA test.

Results: In most of the investigated factors (7 of 11) statistically significant differences in answers were observed among the groups. Only six participants in all groups indicated human papillomavirus as the factor responsible for the development of cervix carcinoma.

Conclusion: In all three groups of the interviewed women, bacterial and viral causes of the disease were highly ranked in comparison to other risk factors. Only a small number of participants indicated human papillomavirus as an etiological factor. There is need to improve the knowledge about risk factors through health promotion and health education in order to change the epidemiological situation concerning cervical carcinoma.

Key words: Uterine Cervical Neoplasms; Risk Factors; Health Knowledge, Attitudes, Practice; Primary Prevention; Health Promotion

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INTRODUCTION

Cervical carcinoma represents one of the malignant diseases with which medical advancement has caused significant reduction of new cases as well as significantly fewer deaths in many countries. Data indicate a rather unfavorable epidemiological situation in the Province of Vojvodina (Serbia), which places us at the very top of the list of European countries with the highest rate of incidence and mortality (1).

ETIOLOGY AND RISK FACTORS

It is well known today that the human papillomavirus causes persistent inflammation and represents a necessary factor in the development of cervical carcinoma (2). As far as the other risk factors are concerned, they are as follows (3, 4).

- Early sexual intercourse
- Large number of sexual partners
- Partner's promiscuity
- Non-protected sexual intercourse
- Immunodeficiency
- Smoking
- Oral contraceptive
- Unfavorable social-economic status
- Taking diethylstilbestrol during pregnancy
- Giving birth a number of times
- Anamnestic information on sexually transmitted diseases

AIMS

- (1) To investigate the attitudes and beliefs about risk factors responsible for developing cervical carcinoma.
- (2) To determine the level of awareness and knowledge about these factors among the interviewed women.

- (3) Based on the obtained data, to determine, if women need to be better educated about the cervical carcinoma risk factors.

METHOD OF INVESTIGATION

There were 210 women interviewed by a questionnaire designed especially for this study. The questionnaires were distributed to the participants and collected back during their visit of the chosen medical institution during the second and the third quarter of 2006. They were divided into three groups of 70 interviewees by random selection.

Group A: women with cervical carcinoma and who were treated at the surgery and radiotherapy clinics of the Oncology Institute of Vojvodina in Sremska Kamenica. The inclusion criterion was a histopathologically confirmed diagnosis of cervical carcinoma. The women with noninvasive carcinoma were not included.

Group B: healthy women who participated the preventive screening programmed at the Oncology Institute of Vojvodina.

Group C: female students who were the patients in the Students Health Centre.

The main instrument in this research was an anonymous questionnaire, specially created for the purpose of this investigation. Prospective method of data collection was applied in this research. The questionnaire was created on the type of closed questions, including multiple-choice answers in the form of scales. There were 11 factors offered to determine their influence on the development of cervical carcinoma with values between 1 for the lowest influence, and 5 for the largest influence of each factor. The women estimated the influence of these factors based on their personal knowledge about this type of cancer. Statistical analysis of data was based on ANOVA test. The results are presented as mean values. A probability value of 5% was considered significant ($p < 0.05$).

RESULTS

The demographic data of participants are shown in Table 1.

The participants' median age in group A was 46.69 years (range, 27-71 years) and they were all from Vojvodina. Regarding the level of education, 21 percent had elementary, 63 percent had secondary, and 16 percent were with a university degree.

The participants' median age in group B was 43.87 years (range, 29-57 years) and they were all from Vojvodina. Regarding the level of education, 7 percent had elementary, and 40 percent had secondary education, and 53 percent were with a university degree.

The participants' mean age in the group C was 23 years (range, 20-26 years) and 7 of them did not live in Vojvodina.

Table 1. Demographic data in study groups

Demographic data	Group A	Group B	Group C
Age (average)	46.69	43.87	22.52
Place of residence (%)			
Vojvodina	100	100	90
other	0	0	10
Education level (%)			
primary school	21.4	7.1	0
secondary school	62.9	40.0	100
university	15.7	52.9	0

The average values for 11 investigated risk factors in groups of participants are shown in Table 2.

Regarding the influence of smoking on the development of cervical cancer average value varied from 2.97 in Group C to 3.29 in Group A. Having compared the average score among the three groups of participants, there is no statistically significant difference in the answers regarding this factor.

Having compared the answers among the three groups of participants, statistically no significant difference could be observed in the answers regarding the influence of alcohol. Average values were around 3 in all groups.

Table 2. Comparison of the answers' score by study group

Questions of cancer	Cervical influence	Group A	Group B	Group C	P value
Smoking	av. value	3.20	3.18	2.97	0.5112
Alcohol	av. value	2.91	3.09	2.74	0.2454
Age (1st intercourse)	av. value	3.13	3.47	2.74	0.0079
No. of sex partners	av. value	3.54	3.82	3.36	0.1468
Bacterial infection	av. value	4.04	4.36	4.24	0.2183
Viral infection	av. value.	3.20	4.17	4.03	0.0001
Immunodeficiency	av. value	3.81	4.09	3.00	0.0001
Hormonal therapy	av. value.	3.30	4.00	3.21	0.0002
Oral contraceptive	av. value	2.84	3.32	2.60	0.0024
Nutrition	av. value	3.46	3.64	2.70	0.0001
Inheritance	av. value	3.97	4.04	3.43	0.0081

One of the most important risk factors for HPV infection was the age of the first sexual intercourse and by comparing the three groups of participants, a statistically significant difference in answers has been found. The highest average value was in group B (3.47) and the lowest value was in group C (2.74).

The number of sexual partners was also a very important risk factor for HPV infection, but according to $p=0.1468$ a conclusion could be drawn that there was no statistically significant difference in the answers regarding this factor. This risk factor was included in five leading answers in groups C and A.

There was no statistically significant difference in the answers regarding the influence of bacteria. Average values of the answers were highest in group A and group C of all other factors. The bacteria that could cause development of cervical carcinoma were indicated precisely by 5.71% of the participants in each group. More than a half of participants mentioned *Chlamydia* and individually five other microorganisms.

Interestingly, there was a statistically significant difference in answers regarding the influence of viral infections. The highest average score was given in group B (4.17). In the group B none of the participants considered HPV as a possible cause, but one of them considered HIV as a cause of the cervical carcinoma. Three participants from group A and from group C considered HPV as a cause of this carcinoma.

According to the answers there was a statistically significant difference regarding the influence of immune deficiency. As for the influence of hormonal therapy and the influence of oral contraceptives the results were similar. For hormonal therapy the average varied from 3.21 (group C) to 4.00 (group B) and for oral contraceptives from 2.60 (group C) to 3.32 (group B) respectively.

The next comparison takes into consideration was the influence of nutrition for the development of cervical carcinoma. While the attitudes in groups A and B mostly coincide, the attitudes of group C differ by the average value of 2.70. By comparing the answers in all three groups, a statistically significant difference has been observed regarding this factor. Regarding the influence of hereditary factor on the development of cervical cancer average values varied from 3.43 in Group C to 4.04 in Group B. There is a statistically significant difference in average value between the groups.

A comparative presentation of the order of significance of the five leading factors by groups is shown in Table 3.

Table 3. Rank of five leading answers for cervical cancer risk factors by study group

Group A		Group B		Group C	
1.	Bacterial infections	1.	Inheritance	1.	Bacterial infections
2.	Inheritance	2.	Bacterial infections	2.	Viral infections
3.	Viral infections	3.	Viral infections	3.	Inheritance
4.	Immunodeficiency	4.	Immunodeficiency	4.	Sexual partners
5.	Sexual partners	5.	Hormonal therapy	5.	Hormonal therapy

DISCUSSION

Positive correlation between smoking and development of cervical carcinoma has been proved and it depends on dose, as it is the case with many others cancers (5). It has been registered that there is N-nitrosamine in cervical mucosa of active and passive smokers, and there are reports about decrease of cervical lesions with discontinuation of smoking (6). Generally, a conclusion could be drawn according to the opinions in all three groups that smoking is not an important cause in developing cervical carcinoma.

Women who had an intercourse with 3 to 5 partners are running an eight-fold larger risk to develop this disease, compared to those who are in a monogamous relationship. The participants from our study groups assigned extremely high importance to this factor.

It must be emphasized that participants from group C gave less importance regarding age of the first intercourse and number of sexual partners than participants from other two groups. The participants in the group C were 23 years old on average and they must be target of better education and health promotion in order to improve their knowledge concerning safe sex.

Although many infectious causes were correlated with the development of cervical carcinoma in the past, herpes simplex type 2 and *Chlamydia trachomatis* are listed as possible etiological causes today, in addition to HPV (7). Some authors state the presence of HPV-DNK in altered cells in 90% of cases, while others find viruses in almost all altered malignant cells. Most of the infections (over 90%) occur as temporary, short-lived ones (HPV-DNK negativization, from 8 to 24 months) (8). All participants considered bacteria as more significant cause of cervical cancer than viruses. Consequently, the infectious factor as a cause is recognized in our population. A relatively higher percentage of participants in similar studies conducted in other countries have recognized HPV as the cause of cervical carcinoma than in our survey (3.1% to 2.4%). Baer introduces similar results regarding awareness about HPV (9). The screening executed at the Institute for Medical Biometry, Epidemiology, and Information Technology among women of 25 to 75 years of age show that 3.2% of women know that HPV infection is responsible for cervical carcinoma, while 70% of them regard themselves insufficiently informed about risk factors concerning this carcinoma. The author concludes that it is necessary to raise the awareness about risk factors in Germany (10).

The role of immunosuppression is also important. The risk of HPV positivity as well as of persistent infection is higher in HIV positive women (11). Thus persistence is 1.9 times higher if the level of CD4+ cells is below 200 cells/ μ L. Groups A and B gave higher importance to immunodeficiency than the Group C.

The use of oral contraceptive pills for longer than five years increases the risk of cervical carcinoma three times (12). The risk is associated with the development of glandular lesions. The participants mostly did not assign great importance to the influence of oral contraceptive pills on the development of cervical carcinoma.

The participants considered hereditary factors highly important. In a survey executed in Antwerp, Dr. Baay interviewed the women visiting a general practitioner, the women who were educated about cervical carcinoma, and female students of biomedical sciences (13). Summative results have shown that the genetic factor comes first and bacterial infections second on the list of significance for the development of cervical carcinoma. That the role of genetic factors is exaggerated was also established by Philips (14).

Ruffin published an interesting scientific paper in 2003 in which he tested the knowledge of family practitioners about the risk factors regarding cervical carcinoma. In total, 2,500 active members of American Academy of Family Doctors were tested. One of the results show that age and the number of pronounced factors correlate inversely ($p=0.0001$). Additionally, female doctors quote significantly more risk factors than male doctors ($p=0.05$). The conclusion of the author is that family practitioners have limited understanding of risk factors responsible for the development of cervical carcinoma and that this fact could be one of the critical aspects for the development of the disease (15). Pitts and Clarke conducted a study in which women of 19-64 years of age were included from all departments of a university in Great Britain (16). The authors have concluded that it is necessary to inform women, but without developing anxiety. Magazines, newspapers, TV programs, and medical staff have a central role in this process. The role of public health is to provide ways of communication, i.e., accurate information about HPV and the dangers connected with it, and within the scope of cervical screening. The results of some actions in this respect have been presented and they are encouraging (17).

As previously mentioned, most of the authors quote in their research that participants do not know enough about HPV. Holcomb has also found that women know more about it than men and the same is valid for married people. Knowledge positively correlates with the years of education and with their own estimation of knowledge. The author concludes that the best time for acquiring information is before starting with sexual intercourses (18). However, it remains insufficiently supported by objective data how much intervention activities change risky behavior (19). Lamberti has described the education of students of biomedical science, focusing on the facts about HPV. After three months, the cohort was given the same questionnaire. The results show that before intervention only

45% questions on HPV were answered correctly, and after education 79% (20). A parallel test about seven sexually transmitted diseases shows that patients know the least about HPV (21).

Reid has had summative processing of scientific works on the knowledge of women about the Pap test, risk factors, and cervical carcinoma (22). The author has concluded that it is necessary to improve the level of knowledge because it is insufficient.

Most of young women will experience HPV infection during their lives and it is almost impossible to prevent the influence of all risk factors during adolescence. However, the influence of some factors may be reduced.

It can be concluded that it is necessary to inform women in our country about the risk factors of cervical carcinoma and it can be done through the healthcare and education systems especially in young population. In 2009, the Ministry of Health started a public campaign against most frequent cancers, which also includes campaigns on better education about the possibilities of primary and secondary prevention of malignant disease.

Supplement 1

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Questionnaire

1. Date of birth
2. The residing place

In your opinion, please determine the influence of the following factors in the development of cervical carcinoma

THE INFLUENCE OF SMOKING

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF ALCOHOL

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF AGE OF FIRST CONSENT

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF NUMBER OF SEXUAL PARTNERS

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF BACTERIA

Unimportant	1	2	3	4	5	Important
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If the answer is 4 or 5 say exactly what bacteria

THE INFLUENCE OF VIRUSES

Unimportant	1	2	3	4	5	Important
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f the answer is 4 or 5 say exactly what bacteria

THE INFLUENCE OF IMMUNODEFICIENCY

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF HORMONAL THERAPY

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF ORAL CONTRACEPTIVE PILLS

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF NUTRITION

Unimportant	1	2	3	4	5	Important
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THE INFLUENCE OF INHERITANCE

Unimportant	1	2	3	4	5	Important
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Conflict of interest

We declare no conflicts of interest.

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