

Barriers to the Cervical Cancer Screening in the Northern Slovakia

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Abstract

Background

A barrier to screening is a specific attitude, opinion or state that prevents the patient from seeking preventive care. The aim of this study was to identify and compare barriers to cervical cancer screening (CCS) in Northern Slovakia between women seeking and not seeking CCS.

Methods

Data collection was performed in twenty gynaecological departments, each department sending data from five healthy women and five untreated women with cervical cancer. Women completed a validated and standardized questionnaire with 28 statements (the CPC-28 questionnaire: "Creencias, Papanicolaou, Cancer-28" questionnaire – Beliefs about Papanicolaou and Cervical Cancer). A four-point Likert scale (item score from 1 to 4) was used to assess responses. A linear transformation was made to calculate the responses. Differences with a p value of < 0.05 were considered statistically significant.

Results

From the 200 questionnaires, 135 (67.5%) participants were divided into the women seeking CCS (n = 97) and the women not seeking CCS (n = 38). The women not seeking CCS vs seeking CCS had higher barriers according to the CPC-28 domain one (median; interquartile range: 33.33; 28.70-40.74 vs 14.82; 7.41–29.63; $p < 0.001$). The risk of not seeking CCS was statistically significant in non-working (OR; 95% CI: 2.458; 1.127–5.358; $p < 0.024$), non-childbearing women (OR; 95% CI: 3.302; 1.421–7.671; $p < 0.006$) and women without cervical cancer (OR; 95% CI: 4.709; 1.960-11.317; $p < 0.001$).

Conclusion

We identified barriers to cervical cancer screening in both of our groups but the results were more frequent and statistically significant in the women not seeking CCS.

Background

Slovakia is a country in Middle Europe belonging to a group of developed countries with well-organized healthcare systems that include free preventive gynaecological examinations with cervical cancer screening. On average, 650 new cervical cancer cases occur in Slovakia each year, especially among women of productive age [1]. According to available data from health insurance companies, only 46% of women participate in preventive gynaecological examinations. In comparison with other countries this is a very low percentage [2]. Therefore, it is necessary to understand and define the reasons why women do not attend preventive gynaecological check-ups. A barrier to screening is a specific attitude, opinion or state that prevents the patient from seeking preventive care. In general, barriers are divided into two groups: barriers to screening caused by healthcare system disorganization and barriers from the patient's perspective. In Slovakia we have not found any studies aimed at the identification of barriers to cervical cancer prevention. In countries with much higher cervical cancer screening utilization (US, Sweden, Norway, Italy) many scientific studies are aimed at a better understanding of the barriers among women who do not participate in the preventive programme [3]. Irregular or no participation in the screening examination is connected to the diagnosis of cervical intraepithelial lesions in advanced stages. Non-participation in the screening programme is considered to be one of the risk factors for further development of cervical cancer [4–6].

The aim of this study

The aim of this study was to identify and compare barriers to cervical cancer screening (CCS) in Northern Slovakia between women seeking and not seeking CCS.

Methods

Questionnaire

A validated and standardized questionnaire was used as the instrument for data collection: the CPC-28 questionnaire ("Creencias, Papanicolaou, Cancer-28" questionnaire – Beliefs about Papanicolaou and Cervical Cancer). The source was an original questionnaire developed and validated in 2009 (Cronbach's $\alpha = 0.735$) [7, Additional file 1]. We translated and validated the CPC-28 questionnaire into the Slovak language (Cronbach's $\alpha > 0.8$ in all six domains) [8]. In the introductory part, the questions are aimed at demographic indicators, gynaecological history and the presence or absence of chronic diseases and other cervical cancer risk factors [5].

The CPC-28 questionnaire consists of 28 statements [7, 8]. Women indicate one of the four alternatives provided to show whether they agree or disagree with the given sentence. The statements are divided into six domains (Domain 1: Barriers to have a Pap test; Domain 2: Cues to action to have a Pap test; Domain 3: Severity of cervical cancer; Domain 4: Need to have a Pap test; Domain 5: Susceptibility to cervical cancer; Domain 6: Benefit to have a Pap test); nine questions aimed at the barriers to cervical cancer screening in Domain 1 (Table 1). Labelling of the statements in this article comes from the order in the original version of the questionnaire. In the case of agreement with the given sentence, a barrier is present. A four-point Likert scale was used to assess responses (1: Strongly agree, 2: Agree, 3: Disagree, 4: Strongly disagree). To each answer the corresponding item score was added. A linear transformation

was made to calculate the responses for range 0–100 according to the formula adjusted to each domain. The higher the score on the scale from 0–100, the stronger is barrier.

Table 1
The statements in CPC-28^a aimed at the identification of cervical cancer screening barriers – Domain 1^b

Number	Text
A2	I do not have time to get a Pap test.
A3	I have not taken the Pap test because they treat me badly in the healthcare centre.
A4	I do not know at what age it is necessary to have a Pap test.
A5	I have not taken a Pap test because when I go, I need to wait a long time to be seen.
A7	I have not taken the Pap test because I am afraid to find out if I have cancer.
A8	I have not taken the Pap test because the healthcare centre is only open during hours when I cannot go.
A9	I have not taken the Pap test because I am embarrassed to have a genital examination.
A10	I do not know how often I need to get a Pap test.
A11	I have not taken a Pap test because it is difficult to get an appointment.
^a CPC-28 = CPC-28 questionnaire (Creencias, Papanicolaou, Cancer-28 – Beliefs about Papanicolaou and Cervical Cancer)	
^b Domain 1 = Barriers to have a Pap test	

Data Collection

Of the 62 gynaecological outpatient departments in Northern Slovakia, 20 departments were randomly involved in the data collection. Each department sent the completed CPC-28 questionnaire – for five healthy women and five women with untreated cervical cancer. Women were selected using the case-control method to ensure the balance of the study set. Inclusion criteria were: over 18 years of age, no oncological disease (for the healthy women) and diagnosed with previously untreated cervical cancer (for the women with untreated cervical cancer). Exclusion criteria were: pregnancy, other oncological disease, impaired cognitive functions, incomplete questionnaire and refusal to participate (questionnaire not completed). Women included and excluded from the study are shown in Fig. 1.

Statistical Analysis

Analysis and statistical evaluation of data were made using the computer programs Microsoft Office Excel 2007, Epi Info™ 7.1.5 and Statistica 13. The data from the introductory part of the questionnaire (demography, gynaecological history, risk factors) were analysed by using descriptive statistics. Chi-square test, non-parametric tests (Mann–Whitney U test) and Odds ratio were used for statistical significance rating. Differences with a p value of < 0.05 were considered statistically significant.

The study was approved by the ethics committee of the Jessenius Faculty of Medicine Comenius University under the protocol number EK1431/13. Informed consent was obtained from all individual participants included in the study.

Results

From the 200 questionnaires, 135 (67.5%) participants were divided into the women not seeking (n = 38) and seeking CCS (n = 97). The median age was 32.0 years (interquartile range 23–48 years) in the women not seeking CCS vs 37.0 (interquartile range 30–47 years) in the women seeking CCS. There were no statistically significant differences between the two groups (p = 0.189). Descriptive statistics for the file are shown in Table 2. To evaluate the results, the strength of the barrier was determined based on the value of the scale. A higher value range indicated a stronger barrier. On comparing the range for Domain 1 between the women not seeking and seeking CCS (median; interquartile range: 33.33; 28.70–40.74 vs 14.82; 7.41–29.63) there were no statistically significant differences (p < 0.001). The statistically significant differences were found in Domains 4 and 6 (Table 3). The results in domains 4 and 6 confirmed the results of domain 1 on the presence of barriers in women not seeking cervical cancer screening.

Table 2
Sample characteristics

	No N (%)	Yes N (%)
Preventive examination	38 (28.1)	97 (71.9)
University education	74 (54.8)	61 (45.2)
Working women	44 (32.6)	91 (67.4)
Number of childbirths: 1 or more	31 (23.0)	104 (77.0)
Smokers	107 (79.3)	28 (20.7)
Taking HC ^a	84 (62.6)	51 (37.8)
With cervical cancer	73 (54.1)	62 (45.9)
Chronic disease's	56 (41.5)	79 (58.5)
^a HC = hormonal contraception		

Table 3

CPC-28^a questionnaire – Domains scale in the women seeking and not seeking cervical cancer screening

Domain	Women seeking CCS (N = 97) median (interquartile range)	Women not seeking CCS (N = 38) median (interquartile range)	p value*
1	14.82 (7.41–29.63)	33.33 (28.70–40.74)	0.000
2	44.44 (33.33–61.11)	44.44 (33.33–61.11)	0.879
3	16.68 (0.00–33.33)	25.00 (0.00–33.33)	0.416
4	22.22 (0.00–33.33)	33.33 (19.44–36.11)	0.049
5	33.33 (33.33–44.44)	44.44 (33.33–55.56)	0.230
6	0.00 (0.00–22.22)	22.22 (8.33–25.00)	0.003
* Mann-Whitney U test			
^a CPC-28 = CPC-28 questionnaire (Creencias, Papanicolaou, Cancer-28 – Beliefs about Papanicolaou and Cervical Cancer)			

Cervical cancer screening barriers were investigated in Domain 1. The statistically significant differences between the women not seeking and seeking CCS were found in all items of Domain 1 (Table 4).

Table 4

Domain 1^a: Comparison of the responses in the women seeking and not seeking cervical cancer screening

Item	Women seeking CCS (N = 97)				Women not seeking CCS (N = 38)				p value*
	Strongly agree	Agree	Disagree	Strongly disagree	Strongly agree	Agree	Disagree	Strongly disagree	
A2	1 (1.0)	6 (6.2)	34 (35.1)	56 (57.7)	1 (2.6)	4 (10.5)	23 (60.5)	10 (26.3)	0.012
A3	1 (1.0)	0 (0.0)	36 (37.1)	60 (61.9)	0 (0.0)	1 (2.6)	26 (68.4)	11 (28.9)	0.002
A4	6 (6.2)	29 (29.9)	28 (28.9)	34 (35.1)	4 (10.5)	11 (28.9)	20 (52.6)	3 (7.9)	0.006
A5	2 (2.1)	5 (5.2)	40 (41.2)	50 (51.5)	2 (5.3)	6 (15.8)	21 (55.3)	9 (23.7)	0.013
A7	0 (0.0)	2 (2.1)	40 (41.2)	55 (56.7)	0 (0.0)	0 (0.0)	25 (65.8)	13 (34.2)	0.031
A8	1 (1.0)	1 (1.0)	34 (35.1)	61 (62.9)	1 (2.6)	3 (7.9)	26 (68.4)	8 (21.1)	0.000
A9	2 (2.1)	3 (3.1)	34 (35.1)	58 (59.8)	0 (0.0)	1 (2.6)	26 (68.4)	11 (28.8)	0.030
A10	5 (5.2)	25 (25.8)	34 (35.1)	33 (34.0)	4 (10.5)	12 (31.6)	18 (47.4)	4 (10.5)	0.044
A11	1 (1.0)	4 (4.1)	40 (41.2)	52 (53.6)	4 (10.5)	1 (2.6)	28 (73.7)	5 (13.2)	0.000
* Chi-square test									
^a Domain 1 = Barriers to have a Pap test									

The risk of not seeking CCS was statistically significant in the non-working, non-childbearing women and the women without cervical cancer. Education, smoking, hormonal contraception, and chronic diseases also increased the risks of not seeking CCS but were not statistically significant. This indicates the influence of risk factors that limit seeking CCS (Table 5).

Table 5
The risks factor to cervical cancer screening in the women not seeking cervical cancer screening

	Odds ratio	95% CI	p value*
University education	1.760	0.826–3.751	0.143
Not working women ^a	2.458	1.127–5.358	0.024
Number of childbirths: 0	3.302	1.421–7.671	0.006
Non-smokers	2.051	0.717–5.865	0.180
Women not taking HC ^b	1.723	0.767-3-869	0.188
Women without cervical cancer	4.709	1.960-11.317	0.000
Women with chronic disease's	2.124	0.948–4.759	0.067
^a Unemployed, student, maternity leave, retired			
^b HC = hormonal contraception			
* Mann-Whitney U test			

Discussion

Barriers to cervical cancer screening among the female population exist in both developing and developed countries. Numerous scientific studies all over the world have been conducted to define the reasons for low participation of women in preventive gynaecological programmes. Current articles show that the women's reasons for non-attendance at screening are diverse [9–13]. The barriers to cervical cancer screening, according to the results of numerous studies, can be divided into five main groups: informational; psychological; socio-economic; behavioural and cultural; and geographical. The boundaries between the groups of barriers are blurred and overlap each other. Reasons why women do not participate in screening are subjective and therefore difficult to clearly describe and define [14–16].

The CP-28 questionnaire focuses on barriers to seeking CCS. In all items of domain one, we found higher scores in the women not seeking CCS. The results were statistically significant. There was an interesting study in which the authors addressed the question of cervical cancer screening utilization among women living in England (London), who were originally from Slovakia, Poland and Romania. Women were informed about cervical cancer screening but they did not understand its importance for their health. They said they were positively motivated by invitation letters and reminders however but did not know how often the Pap test was performed and at what age it was necessary to undergo it for the first time [17].

A study conducted in Germany and Norway found that married women, mothers and non-smokers underwent the Pap test more often than unmarried women. In these countries, women receive a reminder every three years to undergo a screening. Women who underwent the screening had better knowledge about its frequency and screening attendance increased with age [18].

In our research, 38.7% of women did not have enough information about the age for a Pap test (item A4). 36.1% subjects in the women seeking CCS and 39.4% subjects in the women not seeking CCS did not have knowledge about the frequency of cervical cancer screening.

Long waiting times for the check-up (item A5) were considered to be a barrier for 21.1% of the women not seeking CCS, with a statistically significant difference in relation to the second group where this barrier was present in only 7.3% of women. Compared with studies from other countries, we have found more time-related barriers in Slovakia. In Poland, research was carried out at secondary schools and universities in Krakow that involved 400 women aged 17–26 years; overall, 11.2% of women perceived screening as time-consuming [19]. Authors from Estonia published the results of a study involving 1054 women where long waiting times were considered a barrier in 12.9% of women [20].

Inadequate behaviour of healthcare workers (item A3) was a statistically significant stronger barrier present in 2.6% of the women not seeking CCS vs 1.0% of women seeking CCS. Women in England described disappointment with the doctor's approach and felt better if they perceived empathy and a more sensitive attitude [21]. Compared to other countries, our research found far weaker barriers related to inadequate or inappropriate behaviour of medical staff and healthcare workers (doctors or nurses).

Fear of positive cervical cancer diagnosis (item A7) was seen as a barrier in 2.1% of the women seeking CCS vs 0.0% of the women not seeking CCS. Embarrassment at undergoing a gynaecological examination (item A9) was present in 5.2% of the women seeking CCS 2.6% of the women not seeking CCS. In the Danish study, embarrassment (16.6%) and fear and anxiety (8.4%) decreased with age. An unpleasant experience from previous genital examinations increased with age. Pregnancy, breastfeeding or infertility treatment was a reason for not participating in screening. Interestingly, 0.7% of women do not participate in screening purely on principle, through their own convictions, without specifying further reasons. However, Denmark is one of several countries

where experience has confirmed that invitations directly from a doctor lead to a slight increase in screening participation and willingness to undergo the Pap test [22].

In the women seeking CCS and the women not seeking CCS 7.2% and 13.1% of women, respectively, did not have enough time to undergo cervical cancer screening (item A2). Opening hours of healthcare or gynaecological centres were not compliant with women's time management (item A8) in 2.0% and 10.5% of the women seeking CCS and not seeking CCS, respectively. In Estonia, unsatisfactory opening hours (11.8%) were more often expressed as a barrier than in Slovakia [20].

Problems with getting an appointment for the preventive gynaecological screening (item A11) were expressed as a barrier in 5.1% and 13.1% of the women seeking CCS and not seeking CCS, respectively. In Denmark, 32.3% of the 9484 women participating in the study reported organizational barriers as the main reason for not participating in regular screening. Most often they had forgotten to keep an appointment. Other problems with appointments were seen in 9.8% of women [22]. In healthcare systems where it is necessary to make an appointment for an examination, appointment difficulties can pose a significant barrier to cervical cancer screening.

The psychological barriers involved in the CPC-28 questionnaire include the fear of positive examination results and embarrassment. In Chile, 127 women diagnosed with cervical cancer were involved in the study. This group of women is much more sensitive to cervical cancer-related issues and barriers to cervical cancer screening were found in 38%: including embarrassment (50%), inadequate behaviour of healthcare workers and a negative experience from previous examinations preventing their return. Time-related problems, fear of diagnosis and lack of knowledge about the preventive effect of the Pap test were expressed as other barriers [23, 24]. There is a lack of randomised controlled trials designed to specifically address falling cervical screening uptake in amongst young women [25]. Educating women about barriers and training the health-care professionals can facilitate an effective dialogue between two groups [26,27].

Strengths and limitations

This research is the first of its kind in Slovakia and can serve as a source for similar research in relation to other preventive examinations and screening programmes. Our results were realized by a standardized and validated CPC-28 questionnaire. Comparing our results with those of other countries will help to understand the barriers to cervical cancer screening. When comparing our results with the results of studies in other countries it is important to understand the different socio-economic and cultural conditions, the demographic characteristics of women's populations, the various methodologies applied and the target groups of women in the research. The limitation of our study is in the local evaluation of the women's population. On the other hand, it is positive that the issues related to cervical cancer screening are studied and compared globally. The results of such studies may contribute to a better understanding of the reasons why people do not care about their health as they could.

Conclusion

In conclusion, after evaluating the barriers to cervical cancer screening and the comparisons made between both of our groups, we can conclude that the existence of the barriers is statistically significant for some demographic selections. Namely, the risk of not seeking the CCS was statistically significant in non-working, non-childbearing women and women without cervical cancer.

On the basis of these results, it will be possible to propose a change in the way preventive health services are offered and to address target populations in efforts to improve the quality of public health. It is important to minimize time barriers. It is recommended to educate healthcare workers about appropriate communication with women during preventive examinations. In Slovakia since 2019, the Ministry of Health introduced screening invitation letters as part of a State-controlled screening programme.

Abbreviations

CCS

Cervical Cancer Screening

CPC-28 questionnaire

"Creencias, Papanicolaou, Cancer-28" questionnaire (Beliefs about Papanicolaou and Cervical Cancer)

Pap Test

Papanicolaou Test

Declarations

Ethics approval and consent to participate

The study was approved by the ethics committee of Jessenius Faculty of Medicine Comenius University under the protocol number EK1431/13. Written informed consent was obtained from all individual participants included in the study.

Consent for publication

Not applicable.

Availability of data and materials

All data analysed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

VS: Ideas; Project development; Responsible for validation of the questionnaire, progression of the study; Manuscript writing and conducted the statistical analysis; Editing and approving the final version;

LK: Data collection; Progression of the study;

JS jr.: Responsible for validation of the questionnaire; Progression of the study; Helped with reviewing the manuscript;

VSz: Responsible for validation of the questionnaire; Data collection, progression of the study; Manuscript writing and conducted the statistical analysis.

All authors read and approved the final manuscript.

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Figures

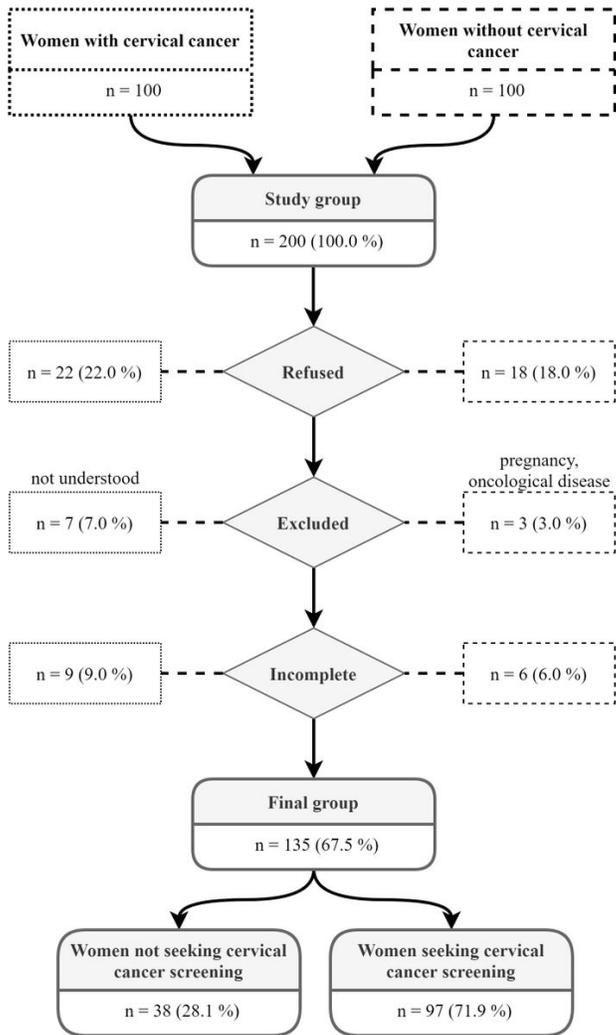


Figure 1

Study flow chart

Supplementary Files

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