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Original Article

Assessment of Sexual Health and Use of Cervical Cancer Screening among the Female Working Population

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Abstract

Background: Cervical cancer occupies a significant place in the overall structure of morbidity and mortality in developing countries. We focused on the sexual health and use of cervical cancer screening among the female working population of reproductive age in Central Serbia.

Methods: The research was conducted as a cross-sectional study, according to the methodology Stepwise approach to noncommunicable disease risk factor surveillance WHO. The study population consisted of 1182 female working population aged 18-49 years, living on the territory of Central Serbia. The method of simple random sampling was utilized in the research itself. An anonymous standardized questionnaire was used as a research tool.

Results: During the first sexual intercourse, 38.9% of the participants reported not having used any of the contraceptives, whereas 74.5% of the participants reported not having used them during their last sexual intercourse and 26.1% of the respondents reported not having had a single Pap smear in their lifetime. The multivariate logistic regression analysis singled out the following factors in women who reported not having done a Pap smear in their lifetime as the most significant ones: age – the youngest age group (OR = 3.30, CI = 1.80-6.04), unemployment (OR = 2.87, CI = 0.07-3.40), women who had never been married or had never been in a common-law marriage (OR = 2.55, CI = 1.40-4.66) and individuals with a medium education level (OR = 2.63, CI = 1.67-4.14).

Conclusion: In Serbia, all the activities should be directed towards increasing the levels of awareness and knowledge on sexual health and cervical cancer screening services.

Keywords: Sexual health; Cervical cancer screening; Working population; Central Serbia

Introduction

According to the WHO (1), sexual health cannot be perceived only in terms of the lack of disease, dysfunction or infirmity. It is defined as a condition of complete physical health complete with emotional, mental and social well-being related to the matters of sexuality. As regards sexual health, it is of utmost importance to maintain a positive approach to sexuality and sexual relationships, so that it would be possible to have pleasurable and safe sexual experiences, deprived of coercion, discrimination and violence. Furthermore, respecting, protecting and fulfilling the sexual rights of all persons is obligatory, so that sexual health is attained and maintained.

Achieving sexual health and well-being is conditioned by the following: the possibility to find access to comprehensive sex and sexuality-related information of good quality; the knowledge relating to the potential risks that may be encountered along with being vulnerable when it comes to bearing the consequences of not using any protection while having sexual intercourse; the ability to use the sexual care services complete with living in an environment promoting positive and affirming views of sexual health. In addition, sexual health entails the following four key areas: research on sexually transmitted infections (STI) prevention behaviors and control strategies, reproductive cancer prevention and management strategies, comprehensive relationships, sexual identity and sexual education, counselling and care, complete with psychosexual counselling on sexual quality of life and function (1).

In developing countries, STIs and STI-related complications are among the top five reasons for seeking health care services, whereas in developed countries these infections are found to be among the top ten causes of morbidity in men and the second cause of morbidity in the population of women (2). STIs have undoubtedly been recognized as one of the most significant public health issues in young population (3, 4).

The data demonstrate relatively low rates of contraceptive use among young women. Not using contraceptives can cause STIs and those infections caused by the human papillomavirus (HPV) may lead to the development of cervical cancer (5).

This particular malignancy is the second leading cause of morbidity and the sixth leading cause of mortality among female population, with more than 1,300 newly diagnosed patients and approximately 500 deaths reported annually in Serbia (6).

The data indicate that cervical cancer screening coverage rates are seven times less in undeveloped countries compared to women from developed countries, 9.0% and 64.0% retrospectively (7). In some countries in East Africa, the majority of women reported not having had a single gynecological exam in their lifetime (68.0%) (8). Women from Latin American countries who visited their gynecologists were 1.47 and 3.44 times more likely to be subjected to testing compared to women who had not had a recent doctor's visit (9). Regardless of the fact that cervical cancer is largely preventable through regular health check-ups and screenings, it still remains one of the leading causes of mortality and morbidity among women globally (10).

This particular research was focused on the assessment of sexual health and use of cervical cancer screening among the female working population in Central Serbia.

Materials and Methods

The research was conducted as a cross-sectional study in three steps, according to the methodology Stepwise approach to noncommunicable disease risk factor surveillance (STEPS) (11), the WHO. The study was conducted in the period from June 2019 to December 2022. For the purposes of this manuscript, we will present the results of the first step-Cervical cancer module and Sexual health module. An anonymous standardized questionnaire entitled the STEPS Question-by-Question (Q-by-Q) Guide, was used as a re-

search tool (11). The questionnaire comprised demographic and socioeconomic indicators, a segment related to the cervical cancer prevention and sexual health characteristics. The study population consisted of 1182 female aged 18-49 years, living on the territory of Central Serbia. As regards sample selection methods used in the study, simple random sampling was used, i.e., our study population comprised of women employed in a number of various companies and institutions on the territory of Central Serbia.

The Ethics Committee of the Faculty of Medical Sciences, University of Kragujevac, approved our research study (No. 01-12167). The participants signed informed consent and in such a manner gave their approval to participate in this particular study.

Statistical data processing

The following methods of descriptive statistics were used for the purpose of performing a statistical analysis: tables of data and methods of the statistical tests (the Student's t-test and the chi-squared test of independence in IBM SPSS Statistics for Windows (Version 21.0) (IBM Corp., Armonk, NY, USA). The bivariate and multivariate logistic regression analysis were used to examine the relationship between the categorical dependent variables and a sequence of independent variables. The Odds Ratio (OR) was used to estimate the risk ratio along with the 95% confidence interval (CI). The results with less than a 5% probability or a p-value less than 0.05 ($P<0.05$) were considered statistically significant.

Results

Description of the sample

While conducting this particular research, women of reproductive age were given the total of 1,200 questionnaires, out of which only 18 questionnaires were not valid. Overall, 1182 female respondents were included in the study, the response rate of which was 98.5%. The average age of female respondents was 33.65±9.25. More than one third of the surveyed population belonged to the 40-49 age group (35.2%). Approximately three quarters of the surveyed population had completed high (secondary) school (72.5%), whereas 25.5% of the respondents included in the sample had graduated from a higher school / college or had completed postgraduate studies. Taking into consideration the total structure of respondents, married adults comprised more than half of them (56.7%), whereas those who had never been married comprised 18.3% of the sample.

Sexual health

During the first sexual intercourse, 38.9% of the participants reported not having used any of the contraceptives, whereas 74.5% of the female respondents reported not having used them during their last sexual intercourse. The most commonly used contraceptives were condoms (71.1%) and contraceptive pills (14.5%). Based on the data analysis, it was concluded that an average number of sexual partners in the last year was 1.06 ±0.34 (Table 1).

Assessment of the use of cervical cancer screening

Out of the total number of participants, 26.1% of the respondents reported not having had a single Pap smear in their lifetime. However, 36.6% of the surveyed population reported having done a Pap smear in the past three years or more. The largest number of female respondents reported to have done the cervical cancer screening test in a healthcare institution (67.3%), whereas every fourth respondent reported to have done it in private medical practice (21.6%). As regards 15.3% of the respondents, their Pap test results were not normal, i.e., cervical cancer was suspected in their case. Every second female respondent who had never done a Pap test, did not state a reason why she had not been subjected to testing (52.6%) (Table 2).

Table 1: Sexual health characteristics of study population

Variables		***N***	***%***
Have you ever had a sexual intercourse?	Yes	1119	94.7
	No	63	5.3
How old were you when you had your first sexual Intercourse?		19.19±2.43	
The first sexual intercourse was with:	A spouse	331	29.6
	Someone you did not marry	788	70.4
Did you use any protection during the first sexual intercourse?	Yes	684	61.1
	No	788	38.9
When was the last time you had a sexual intercourse?	Last week	491	43.9
	From a week to a month ago	483	43.2
	From a month to a year ago	93	8.3
	More than a year ago	52	7.6
How many partners did you have during the last 12 months?		1.06 ±0.34	
Did you have sexual intercourses with more than one partner during the last 12 months?	Yes	65	5.8
	No	1054	94.2
Did you use any protection during the last sexual intercourse?	Yes	285	25.5
	No	834	74.5
What type of contraceptives did you use?	Condoms	796	71.1
	Oral pills	162	14.5
	Another	161	14.4
Where did you get the protection for unwanted pregnancies/infections?	From a store/machine	448	40.0
	From a medical worker	254	22.7
	From a friend	117	10.5
	Another	300	26.8
Have you ever had a sexually transmitted disease?	Yes	63	5.6
	No	1056	94.4
Have you ever asked for advise/treatment concerning STDs?	Yes	170	15.2
	No	949	84.8
Have you ever had sexual intercourses with same-sex partners?	Yes	1117	99.2
	No	2	0.8
Have you ever been pregnant?	Yes	699	62.5
	No	420	37.5
How old were you when you were pregnant?		25.3 ±4.041	
Have you ever had an abortion?	Yes	380	34.0
	No	739	66.0

Table 2: Assessment of the use of cervical cancer screening

Variables		***N***	***%***
Have you ever done a Pap test?	Yes	873	73.9
	No	309	26.1
How old were you when you were first Tested for cervical cancer?		20.33±2.50	
When was the last time you were tested for cervical cancer?	Less than a year ago	212	24.3
	From 1 – 2 years ago	341	39.1
	From 3 and more year	320	36.6
Why were you tested?	A routine check-up	195	22.3
	A check-up after indeterminate abnormal results	27	3.1
	Recommended by a medical worker	172	19.7
	For pain and other symptoms	14	1.6
	As a routine testing	465	53.3
Where were you last tested?	A health center	588	67.3
	A private practice	189	21.6
	A hospital, clinic, clinical center	96	11.1
What was your result?	Normal	739	84.7
	No normal	134	15.3
Did you have check-ups due to your result?	Yes	228	26.1
	No	612	70.1
	I don't know	33	3.8
Did you undergo treatment after your Pap results?	Yes	102	11.7
	No	771	88.3
What is the main reason you have never done a Pap test?	Because I did not have time	147	16.8
	Due to bad quality of health service	73	8.4
	I don't know	459	52.6
	Because of fear, stigma	194	22.2

Association between sociodemographic factors, sexual health and the use of cervical cancer screening

Three quarters of the participants who reported receiving a high school degree had never had a Pap smear test in their lifetime (78.2%), whereas 14.6% of the respondents who had graduated from a higher school reported not having done such a Pap testing. As regards their marital status, 23.0% of the married female respondents reported not having been screened for cervical cancer so far. Every second female respondent who did not use any contraceptives during the first sexual intercourse also reported not having done a Pap test (53.5%). In addition, 54.4% of the respondents who had been pregnant so far did not report cervical cancer screening (Table 3).

Table 3: Association between sociodemographic factors, sexual health and the use of cervical cancer screening

	Pap test				
Variable	Yes		No		*P*
Age groups(yr)	N	**(%)**	N	**(%)**	
18-29	126	14.4	98	31.7	0.001
30-39	342	39.2	110	35.6	
40-49	405	46.3	101	32.7	
Education level					
Elementary school	19	2.2	12	3.9	0.001
High school	536	61.4	242	78.2	
Higher school/college	276	31.6	45	14.6	
Postgraduate studies	42	4.8	98	3.4	
Marital status					
Married	751	86.0	71	23.0	0.03
Separated	9	1.0	3	1.0	
Divorced	77	8.8	24	3.9	
Common-law marriage	36	4.2	211	68.2	
Financial status perception					
Bad	89	10.2	37	12.2	0.852
Average	107	12.2	37	12.1	
Good	677	77.6	309	75.7	
Have you ever had a sexual intercourse?					
Yes	869	99.5	292	94.6	0.001
No	4	0.5	17	5.4	
Who did you have the first sexual intercourse with?					
Spouse	265	30.3	107	34.6	0.019
Someone I was not married to.	603	69.1	196	63.4	
I don't remember.	5	0.2	6	2.1	
Did you use any protection during the first sexual intercourse?					
Yes	601	68.9	272	44.6	<0.001
No	272	31.1	171	55.4	
Did you use any protection during the last sexual intercourse?					
Yes	223	25.6	88	28.5	0.511
No	74.4	650	221	71.5	
Have you ever been pregnant?					
Yes	677	77.6	168	54.4	<0.001
No	196	22.4	141	45.6	
Have you ever had an abortion?					
Yes	305	34.9	87	28.3	0.099
No	568	65.1	222	71.7	
Have you ever had a sexually transmitted infection?					
Yes	55	6.3	18	5.8	0.026
No	818	93.7	291	94.2	

Univariate and Multivariate regression model 95

The multivariate logistic regression analysis singled out the following factors in women who reported not having done a Pap smear in their lifetime as the most significant ones: age – the youngest age group (OR = 3.30), unemployment (OR = 2.87), women who had never been married or had never been in a common-law marriage (OR = 2.55) and individuals with a high-school education (OR = 2.63) (Table 4).

Table 4: Univariate and Multivariate regression model

Variable	*Univariate model*		*Multivariate model*	
	OR (95% CI)	*P*	OR (95% CI)	*P*
Age (yr)				
15-29	7.26 (5.31-9.93)	<0.001	3.30 (1.80-6.04)	<0.001
30-39	1.01 (0.78-1.42)	0.714	1.19 (0.74-1.91)	0.462
40-49	1		1	
Marital status				
Separated, divorced, widowed	0.86 (0.53-1.42)	0.571	0.98 (0.49-1.94)	0.963
Never married/never been in a common-law marriage	6.32 (4.78-8.35)	<0.001	2.55 (1.40-4.66)	0.002
Married/common-law marriage	1		1	
Education level				
Elementary school or lower	3.67 (2.01-6.71)	<0.001	0.296 (0.02-3.34)	0.325
High school	3.49 (2.62-4.97)	<0.001	2.632 (1.67-4.14)	<0.001
Higher school and college	1		1	
Financial status perception				
Bad	1.28 (0.6-2.15)	0.345	1.11 (0.59-2.08)	0.745
Average	1.27 (0.91-1.79)	0.162	1.08 (0.71-1.64)	0.717
Good	1		1	
Employment status				
Students	11.46 (7.46-17.62)	<0.001	2.18 (0.09-8.36)	0.911
Unemployed	7.06 (2.89-17.22)	<0.001	2.87 (0.07-3.47)	0.002
Employed	1		1	

CI – Confidence Interval

Discussion

The analysis of our study findings led to the conclusion that 38.9% of the surveyed population used no contraceptive method at first sexual intercourse, whereas 74.5% of the female respondents reported not having used any contraceptives during their last sexual intercourse.

The findings of a study conducted on the contraceptive use demonstrate that Sweden has the highest abortion rate in Western Europe, whereas two thirds of Swedish women use contraceptives. As for their attitudes towards contraceptive use, the reason for not using any of them lies in the fact that there is a great doubt about their effectiveness (12).

In Spain, 86.9% of the surveyed population reported having used contraceptives at sexual de-

but, whereas the male condom was the most commonly used contraceptive method (90.6%) (13).

By examining the contraceptive methods used in the USA, the Great Britain, Germany, Italy and Spain, it was possible to obtain knowledge about the use of contraceptive pills in terms of their varying between 35% in Spain and 63% in Germany, and also, about the use of male condoms varying between 20% in Germany and 47% in Spain and 50% in the USA (14).

Generally, the reasons for not using contraceptive methods can be found in the lack of knowledge, insufficient level of sexual education and lack of accessibility of healthcare services, the incorrect perception of risks and negative social norms in relation to the premarital sexual activity and pregnancy (15,16). As regards women with lower education levels and socioeconomic status residing in rural areas, significant reasons for not using any contraceptives were the following: husband's refusal of condom use or husband's fear of his wife's infidelity, along with women's fears of possible side effects of contraceptive use or potential health problems associated with different methods of contraception (17).

Our findings indicated that every fourth female respondent had never done a Pap smear in her lifetime (26.1%). A review of prior literature refers to a high percentage of women of reproductive age who had never done such a test before. The current data indicate that the coverage rates for cervical cancer screening services are seven times less in underdeveloped countries compared to coverages for testing women in developed countries, 9.0% and 64.0% respectively. The incidence of cervical cancer screening varies on the territory of the European continent, from one country to another, i.e., Western European countries present a larger scope of women who have been subjected to a Pap smear (18). The results obtained in the survey, based on the assessment of health behavior in Lithuania, revealed a constant rising trend in the percentage of women being screened for cervical cancer from 60% to 74.2% (16).

In South Africa, the percentage of women who were screened for cervical cancer was lower compared to our findings, amounting to only 15%. Furthermore, those women showed a considerably higher level of knowledge on the significance and effectiveness of the Pap testing compared to women who had never been subjected to such testing (19).

The multivariate logistic regression analysis singled out the following factors in women who reported not having done a Pap smear in their lifetime as the most significant ones: age – the youngest age group, a medium education level, unemployment and women who had never been married or never been in a common-law marriage.

Worldwide, two in three women aged 30–49 years have never been screened for cervical cancer (20). The results of the National Survey conducted in Serbia singled out the following factors in women who had never been screened for cervical cancer as the most significant ones: the youngest or oldest age group, rural place of residence and low education levels, poor socioeconomic status and marital status (the fact that they had never been married) (21).

Some of the studies emphasize that younger women with higher education levels, higher economic status, residing in urban residences and paying regular visits to their gynecologist – are significantly more likely to participate in cervical cancer screening programs. On the other hand, women with lower socioeconomic status and education levels, who are unemployed at the same time and do not have a habit of paying regular visits to their gynecologist stand less chance of being involved in screening programs (22).

In Brazil, female respondents residing in urban residences with their partners, who had higher education levels complete with private health insurance, had an increased chance of being included in screening programs. Furthermore, women who obtained regular smears showed healthier behavior patterns and paid more frequent visits to their chosen doctor (23).

The data indicate that social support provided by their partner increases the chances of women to

participate in preventive activities complete with using the sources of health information, which additionally encourage them to keep on with their healthy lifestyle (24).

Taking into consideration the main limitations of our study, they are mostly related to its cross-sectional design complete with a convenience sampling method and a self-report technique. In this manner, self-reporting data can be subject to different sources of information bias, ultimately affecting the validity of study findings. The general female population of reproductive age should be included in our forthcoming research studies, not only women in the workforce.

Conclusion

Raising the level of awareness and knowledge on sexual health along with the implementation of cervical cancer screening programs are important components in preserving the reproductive health of women.

Journalism Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of Interest

The authors fully declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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