

# Implementation of the cervical cancer prevention policy in one of the regions of Lithuania

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## ABSTRACT

**INTRODUCTION** Although the Lithuanian government increases funding for the cervical cancer prevention program every year, the incidence and mortality rates of cervical cancer are among the highest in Europe. In order to improve the prevention policy regarding cervical cancer, it is necessary to investigate the implementation of the cervical cancer prevention policy in one of the regions in Lithuania.

**METHODS** A quantitative survey method—a questionnaire—was applied in one of the regions of Lithuania. The study was conducted from April 1, 2022, until April 18, 2022. During the study, 213 residents of the investigating region were interviewed.

**RESULTS** Respondents evaluated the cervical cancer prevention program in the investigated region positively, but not all women received invitations to participate in this program. The research revealed that the residents of the city of investigation have received this invitation more often than the women living in other districts.

**CONCLUSIONS** Women's opinion about the effectiveness of the cervical cancer prevention program is positive. Still, there is an emphasis on the wish that this program could be used from an earlier age than 25 and continue longer than up to 59, and it is also noted that the prevention program could be carried out more often than is currently established.

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## INTRODUCTION

Cervical cancer begins in the cells of the cervix. A cancerous (malignant) tumor is a group of cancerous cells that can grow into and destroy nearby tissue<sup>1</sup>. Changes in the cells of the cervix can also cause precancerous conditions. This means that the abnormal cells are not yet cancerous, but there is a chance that they could become cancerous if left untreated for a long time<sup>2</sup>. The most common precancerous condition of the cervix goes by different names depending on how it is classified or reported<sup>4</sup>. The most common classifications of precancerous cervical conditions are squamous intraepithelial disease (SIL), cervical intraepithelial neoplasia (CIN), and cervical dysplasia. Cervical cancer is the fourth most common cancer in women worldwide and the second most common in the European Union. Only in Europe in 2018, 61,000 new cases and 25,000 deaths were reported despite cervical cancer being preventable when detected in its precancerous state. On May 19, 2023, the WHO's Director-General issued a call for action to reduce cervical cancer and called for services to be integrated into strong health systems to ensure universal health coverage<sup>5</sup>.

Many European countries have implemented organized cervical screening, and about 70 percent of EU citizens have the opportunity to participate in an organized program. Their success is clear: in countries with an organized screening program, morbidity and mortality have decreased by up to 70 percent<sup>6</sup>. Nevertheless, cervical cancer is still common and even increasing in several Central and Eastern European countries. Other parts of Europe are also reporting an increasing incidence of this. For example, cervical cancer rates have increased by 15 to 30 percent in the past decade in the Netherlands, Sweden, and the UK. This highlights the need for more effective implementation of preventive measures to prevent cervical cancer from becoming a public health problem<sup>7</sup>.

In Lithuania, the number of cases of cervical cancer is increasing every year, and the mortality rate from this disease is one of the highest in Europe. Although the government increases funding for the cervical cancer prevention program every year,

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the incidence and mortality rates of cervical cancer are among the highest in Europe<sup>8</sup>. There is limited information on cervical cancer policy in Lithuania, one study analyzed family doctors' opinions and personal experiences in implementing the cervical cancer prevention program and compared the attitudes of younger and older family doctors working in the public and private healthcare sectors to this prevention program<sup>9</sup>. Another analyzed the management of the cervical cancer prevention program in the context of Lithuania's protection policy, reviewing the cervical cancer prevention program, its management, and its improvement<sup>10</sup>.

Although a cervical cancer prevention program has been implemented in Lithuania since 2004, about 400 new cases of cervical cancer are still diagnosed in the country every year, and up to 200 deaths are registered per year<sup>2,3</sup>. The study aims to investigate the implementation of the cervical cancer prevention policy in one of the regions in Lithuania.

## METHODS

### Study design and collection of data

To review the implementation of the cervical cancer prevention program in one of the regions in Lithuania, a quantitative study using a cross-sectional design and anonymous questionnaires was conducted from April 1, 2022, to April 18, 2022.

### Participants

A total of 31,415 women aged 25-59 lived in the studied region in 2020. In order to survey this general population with at least 7 percent error, at least 203 women in the study region were estimated to be interviewed (2). The sampling process was community-based. Women were invited to participate in the study by receiving an open invitation to the survey using a convenience sampling method.

The participants who agreed to participate in the research were willing to share information, were sincere, tried to give their answers as clearly as possible, and sought mutual understanding. All women gave informed consent to participate in the survey.

The questionnaire survey included information about women's knowledge and opinions about cervical cancer screening programs in Lithuania, and what kind of information they are missing from the healthcare givers.

### Ethics

In order not to violate the research ethics, when placing the research questionnaire in the groups, the purpose and nature of the research and the use of the received answers were briefly explained. The introductory part of the questionnaire also contained written information about the research being conducted. It clearly described how to complete the questionnaire and who can participate (selection criteria are indicated). It emphasized that filling in the questionnaire was not mandatory and can be stopped at any time by free will. Anonymity was maintained throughout the research. The aggregated results were used for study purposes only. Subjects were not required to provide their contact details or

information that would reveal their identity. Ethical approval and informed consent was provided by Mykolas Romeris University Ethical approval (No. 20-11-2019).

### Statistical data analysis.

Descriptive data statistics were used to assess the distribution of the characteristics under consideration in the selected sample - absolute numbers and percentage frequencies (percent). In order to compare the results of the study according to the age of women, we divided all subjects into two groups based on the median age of 37.5 years - younger than 37 years inclusive and 38 years and older. Tables of related characteristics were created to evaluate the relationship of characteristics, the "Chi-square" ( $\chi^2$ ) criterion was calculated to determine the dependence of characteristics and equality of proportions was assessed by z test with Bonferroni correction. After calculating the "Chi-square" tests and comparing the proportions with the help of z-tests, statistically significant ( $p < 0.05$ ) differences were determined.

## RESULTS

During the study, 213 residents of the study region were interviewed, whose average age was  $37.8 \pm 9.3$  years.

The obtained results found that most women (66%) rate their health as very good and good, while only 1% rated it poorly. Results showed that women younger than 37 rate their health as very good significantly more often compared to those older than 38, while married or partnered women rate their health significantly more often than single women. Meanwhile, health assessments according to other sociodemographic characteristics did not differ significantly ( $p > 0.05$ ) as noted in Table 1.

The most commonly mentioned factors influencing the development of cervical cancer included the human papilloma virus (HPV) and a weakened immune system while sexually transmitted infections were less commonly reported. The most commonly mentioned factors influencing the development of cervical cancer were compared according to women's sociodemographic characteristics. Statistically significant ( $p < 0.05$ ) differences were found, which showed that sexually transmitted diseases, smoking, and the use of contraceptive pills were statistically significantly more often mentioned by women younger than 37 years old.

b) Human papillomavirus and sexually transmitted diseases were named significantly more often by women with higher education compared to women with primary, secondary, and special education as noted in Table 2.

Participation in a cervical cancer prevention program was compared according to women's sociodemographic characteristics. Statistically significant differences ( $p < 0.05$ ) were determined, which showed that significantly more people older than 38 years participated in the program compared to those younger than 37 years old. Meanwhile, participation in the program according to other sociodemographic characteristics did not differ significantly ( $p > 0.05$ ). (Table 3)

**Table 1. Distribution of self-reported health by sociodemographic characteristics of women aged 25 to 59 years from April 1, 2022, until April 18, 2022, Lithuania (N=213)**

Very good Good			Assessing your current health				$\chi^2$	df	p
			Mediocre	Week					
Age	Before the age of 37	n	<b>15*</b>	59	30	2	<b>8.46</b>	<b>3</b>	<b>0.037</b>
		%	<b>14.2</b>	55.7	28.3	1.9			
	After the age of 38	n	5	61	40	0			
		%	4.7	57.5	37.7	0.0			
Living area	City	n	15	73	45	1	1.72	3	0.633
		%	11.2	54.5	33.6	0.7			
	Suburb	n	5	44	21	2			
		%	7.0	62.0	29.6	1.4			
Marital Status	Single	n	2	12	16	1	<b>7.99</b>	<b>3</b>	<b>0.046</b>
		%	6.5	38.7	51.6	3.2			
	Married	n	18	<b>108**</b>	55	1			
		%	9.9	<b>59.3</b>	30.2	0.5			
Education level	Lower than Higher	n	3	30	27	1	6.11	3	0.107
		%	4.9	49.2	44.3	1.6			
	Higher	n	17	90	44	1			
		%	11.2	59.2	28.9	0.7			

Note: Statistically significant (p<0.05) differences are highlighted.  $\chi^2$  - «Chi-square» test value, df - number of degrees of freedom of the test, p - statistical significance \*p<0.05, compared to women older than 38 years. \*\*p<0.05 compared to single women.

**Table 2. The most frequently mentioned factors affecting the development of cervical cancer according to sociodemographic characteristics of women aged 25 to 59 years from April 1, 2022, until April 18, 2022, Lithuania (N=213)**

			Human papilloma virus (HPV)	Weakened immune system	Sexually transmitted diseases	Smoking	Contraceptive pills
Age	Before the age of 37	n	86	60	<b>61*</b>	<b>42*</b>	<b>30*</b>
		%	81.1	56.6	<b>57.5</b>	<b>39.6</b>	<b>28.3</b>
	After the age of 38	n	84	55	37	23	15
		%	79.2	51.9	34.9	21.7	14.2
p			0.730	0.491	<b>0.001</b>	<b>0.005</b>	<b>0.012</b>
Living area	City	n	105	75	63	44	27
		%	78.4	56.0	47.0	32.8	20.1
	Suburb	n	60	38	31	20	15
		%	84.5	53.5	43.7	28.2	21.1
p			0.291	0.737	0.647	0.493	0.869
Marital Status	Single	n	23	17	11	7	7
		%	74.2	54.8	35.5	22.6	22.6
	Married	n	147	99	87	58	38
		%	80.8	54.4	47.8	31.9	20.9
p			0.399	0.963	0.203	0.299	0.830
Education level	Lower than Higher	n	40	30	19	14	10
		%	65.6	49.2	31.1	23.0	16.4
	Higher	n	<b>130**</b>	86	<b>79**</b>	51	35
		%	<b>85.5</b>	56.6	<b>52.0</b>	33.6	23.0
p			<b>0.001</b>	0.327	<b>0.006</b>	0.129	0.284

Note: Statistically significant (p<0.05) differences are highlighted \*p<0.05, compared to women older than 38 years. \*\*p<0.05, compared to women with lower than higher education.

**Table 3. Distribution of participation in a cervical cancer prevention program by sociodemographic characteristics of women aged 25 to 59 years from April 1, 2022, until April 18, 2022, Lithuania (N=213)**

	Participation in the cervical cancer prevention program					$\chi^2$	df	p
	Yes		No					
	n	%	n	%				
Age	Before the age of 37	74	69.8	32	30.2	<b>12.63</b>	<b>1</b>	<b>0.000</b>
	After the age of 38	<b>94*</b>	<b>89.5</b>	11	10.5			
Living area	City	110	82.7	23	17.3	0.82	1	0.364
	Suburb	55	77.5	16	22.5			
Marital Status	Single	26	83.9	5	16.1	0.47	1	0.492
	Married	142	78.5	39	21.5			
Education level	Lower than higher	49	80.3	12	19.7	0.06	1	0.805
	Higher	119	78.8	32	21.2			

Note: Statistically significant ( $p < 0.05$ ) differences are highlighted. \* $p < 0.05$ , compared to those younger than 37 years old women.

## DISCUSSION

The findings of this study shed light on several important aspects related to women's health perceptions, factors influencing cervical cancer development, and participation in cervical cancer prevention programs<sup>11</sup>.

Analyzing the results, it is evident that most women rated their health positively. This trend is consistent with existing literature emphasizing the importance of subjective health assessments in understanding overall well-being. However, significant differences emerged when examining health ratings based on sociodemographic characteristics. Notably, younger women, specifically those under 37 years old, were more likely to rate their health as very good than their older counterparts. Similarly, married or partnered women reported better health status than single women. These findings underscore the influence of age and marital status on subjective health perceptions among women. Such insights are crucial for tailoring health interventions and promoting well-being across different demographic groups<sup>12</sup>.

Regarding factors influencing cervical cancer development, the study identified several key determinants, with human papillomavirus (HPV) and weakened immune systems being the most commonly mentioned<sup>13,14</sup>. Conversely, factors such as smoking and contraceptive pill usage were less frequently cited. Furthermore, significant associations were observed between the mention of certain factors and women's sociodemographic characteristics.

For instance, younger women were more likely to mention sexually transmitted diseases, smoking, and contraceptive pill usage compared to older women. Additionally, women with higher education levels were more inclined to cite HPV and sexually transmitted diseases as influential factors. These findings underscore the importance of education and age in shaping awareness of cervical cancer risk factors.

The study also assessed participation in cervical cancer

prevention programs, revealing that a majority of women took part in such initiatives. However, significant differences were noted based on age, with older women showing higher participation rates than their younger counterparts. These findings highlight the need for targeted outreach efforts to engage younger women in preventive healthcare initiatives<sup>15</sup>.

Overall, the results provide valuable insights into women's health perceptions, awareness of cervical cancer risk factors, and participation in prevention programs. By understanding these dynamics, healthcare practitioners and policymakers can develop tailored interventions to promote women's health and reduce the burden of cervical cancer in the population. Further research is warranted to explore additional factors influencing health behaviors and outcomes among diverse demographic groups.

## Strengths and limitations

This work seeks to set baseline knowledge that can be used in cervical cancer prevention programs in Lithuania. However, as a convenience sample was used the participants may not reflect the general population of Lithuania, while subgroups, such as women who suffer from illnesses were not included in this population. Also, an additional limitation is that the research was performed in one Lithuanian region and hence may not reflect the overall population. Further research with larger sample sizes and a broader catchment area are needed.

## CONCLUSIONS

Over three-quarters of the women who filled out the questionnaires had participated in a cervical cancer prevention program. Still, only one-quarter of the women knew about the latest changes in the prevention program law. The majority noted that they know that preventive screening for cervical cancer is one of the prevention measures, but only two thirds of those who filled out the

questionnaires marked vaccinations as a methods of prevention. Further expansion of research and informational interventions on cervical cancer are needed.

## REFERENCES

- Cohen PA, Jhingran A, Oaknin A, Denny L. Cervical cancer. *Lancet*. 2019;393(10167):169-182. doi:[10.1016/S0140-6736\(18\)32470-X](https://doi.org/10.1016/S0140-6736(18)32470-X)
- Buskwofie A, David-West G, Clare CA. A Review of Cervical Cancer: Incidence and Disparities. *J Natl Med Assoc*. 2020;112(2):229-232. doi:[10.1016/j.jnma.2020.03.002](https://doi.org/10.1016/j.jnma.2020.03.002)
- Zhang S, Xu H, Zhang L, Qiao Y. Cervical cancer: Epidemiology, risk factors and screening. *Chin J Cancer Res*. 2020;32(6):720-728. doi:[10.21147/j.issn.1000-9604.2020.06.05](https://doi.org/10.21147/j.issn.1000-9604.2020.06.05)
- Okunade KS. Human papillomavirus and cervical cancer. *J Obstet Gynaecol*. 2020;40(5):602-608. doi:[10.1080/O1443615.2019.1634030](https://doi.org/10.1080/O1443615.2019.1634030)
- Miller AB. Cervix cancer. In: Kramer BS, Gohagan JK, Prorok PC, eds. *Cancer screening*. (pp. 195-217). CRC Press; 1999:195-217.
- Ferrall L, Lin KY, Roden RBS, Hung CF, Wu TC. Cervical Cancer Immunotherapy: Facts and Hopes. *Clin Cancer Res*. 2021;27(18):4953-4973. doi:[10.1158/1078-0432.CCR-20-2833](https://doi.org/10.1158/1078-0432.CCR-20-2833)
- Hull R, Mbele M, Makhafola T, et al. Cervical cancer in low and middle-income countries. *Oncol Lett*. 2020;20(3):2058-2074. doi:[10.3892/ol.2020.11754](https://doi.org/10.3892/ol.2020.11754)
- Kojalo U, Tisler A, Parna K, et al. An overview of cervical cancer epidemiology and prevention in the Baltic States. *BMC Public Health*. 2023;23(1):660. doi:[10.1186/s12889-023-15524-y](https://doi.org/10.1186/s12889-023-15524-y)
- Everatt R, Kuzmickienė I, Intaitė B, Anttila A. Effectiveness of the cervical cancer prevention programme: a case-control mortality audit in Lithuania. *Eur J Cancer Prev*. 2020;29(6):504-510. doi:[10.1097/CEJ.0000000000000603](https://doi.org/10.1097/CEJ.0000000000000603)
- Kuciauskaite G, Jariene K, Kvitkovskaja K. An audit of colposcopy cases for cervical cancer prevention in Lithuanian hospitals. *Eur J Obstet Gynecol Reprod Biol*. 2024;293:102. doi:[10.1016/j.ejogrb.2023.08.286](https://doi.org/10.1016/j.ejogrb.2023.08.286)
- Bedell SL, Goldstein LS, Goldstein AR, Goldstein AT. Cervical Cancer Screening: Past, Present, and Future. *Sex Med Rev*. 2020;8(1):28-37. doi:[10.1016/j.sxmr.2019.09.005](https://doi.org/10.1016/j.sxmr.2019.09.005)
- Canfell K, Kim JJ, Brisson M, et al. Mortality impact of achieving WHO cervical cancer elimination targets: a comparative modelling analysis in 78 low-income and lower-middle-income countries. *Lancet*. 2020;395(10224):591-603. doi:[10.1016/S0140-6736\(20\)30157-4](https://doi.org/10.1016/S0140-6736(20)30157-4)
- Razali N, Mostafa SA, Mustapha A, Abd Wahab MH, Ibrahim NA. Risk factors of cervical cancer using classification in data mining. *J Phys Conf Ser*. 2020;1529(2):022102. doi:[10.1088/1742-6596/1529/2/022102](https://doi.org/10.1088/1742-6596/1529/2/022102)
- Elshami M, Thalji M, Abukmail H, et al. Knowledge of cervical cancer risk factors among Palestinian women: a national cross-sectional study. *BMC Womens Health*. 2021;21(1):385. doi:[10.1186/s12905-021-01510-2](https://doi.org/10.1186/s12905-021-01510-2)
- Nagendiram A, Bougher H, Banks J, Hall L, Heal C. Australian women's self-perceived barriers to participation in cervical cancer screening: A systematic review. *Health Promot J Austr*. 2020;31(3):343-353. doi:[10.1002/hpja.280](https://doi.org/10.1002/hpja.280)

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## CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for disclosure of Potential Conflicts of Interest and none was reported.

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## ETHICAL APPROVAL AND INFORMED CONSENT

Mykolas Romeris University Ethical approval was given (No. 20-11-2019).

## DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

## AUTHORS' CONTRIBUTIONS

GBŽ initiated research, wrote the research paper and manuscript, supervised data collection and analysis. AL participated in study design, conducted the field work and helped with the data analysis. All the authors have supervised data analysis and interpreted the data, read and approved the final manuscript paper.

## PROVENANCE AND PEER REVIEW

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