

Barriers and motivators for uptake of cervical cancer prevention strategies in Eastern Europe: the perspective from Latvia

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Abstract

Introduction: The incidence of cervical cancer (CC) in eastern European countries is high; however, uptake of available prevention strategies is suboptimal. We explored knowledge, behaviors, and attitudes toward CC prevention strategies in Latvian women.

Methods: A mixed-methods study of Latvian women, consisting of surveys and semi-structured interviews, was conducted in Riga, Latvia in September and October 2015.

Results: Altogether, 158 surveys were completed and 10 interviews were conducted. In total, 87% ($n = 135$) had previously had a smear test, and 67% ($n = 105$) correctly identified that cervical cytology was performed to identify precancerous changes. The practice of annual gynecological checkups was prevalent, and many believed it to be synonymous with cervical screening. Detailed knowledge of human papillomavirus (HPV) infection and the HPV vaccine was deficient, although 73% ($n = 115$) and 70% ($n = 90$), respectively, claimed to have heard of them. Negative attitudes existed regarding the HPV vaccine due to fear of potential side effects. On learning that HPV was transmitted through sexual contact, the notion of testing positive for HPV was met with shame and embarrassment.

Conclusions: A small proportion of Latvian women are over-screened, whereas many women remain unscreened. The main contributing factor for this was their poor understanding of the roles that cervical screening and HPV vaccination play in preventing CC.

Keywords: cervical screening, cervical cancer prevention, Latvia, HPV, HPV vaccination, Eastern Europe

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Introduction

Mortality related to cervical cancer (CC) is disproportionately higher in Eastern Europe than in Western Europe (1, 2). This gap is likely to widen as CC mortality in eastern European continues to increase (3). The absence of national cervical screening (CS) programs (CSP) has been reported as a significant contributing factor (4, 5), with countries that have established structured CSPs having demonstrated a reduction in mortality and incidence of CC (6).

In recent years, the majority of eastern European countries have introduced CSPs; however, they differ in their organizational infrastructures. For example, the Czech Republic offers CS annually, Estonia's screening interval is 5 years, and in Latvia it is 3 years (7–9). CS coverage in these countries varies significantly, ranging from 8% in Romania to 72% in Slovenia (7–9). Low coverage of the target populations in some eastern European countries is often due to out-of-program opportunistic screening programs, and they are not underpinned by robust quality assurance mechanisms (7–9). Consequently, the impact of these CSPs appears limited, with very little reduction in CC incidence or mortality rates.

Latvia harbors one of the highest CC incidence and mortality rates in Europe (3). The incidence increased substantially from 8.9/100,000 in 1989 (10), when screening was a mandatory component of annual health checks, to 25.1/100,000 in 2014 (11), following discontinuation of compulsory screening in 1989 and 20 years of opportunistic-only screening (10). A fully-funded national CSP started in 2009, and published data have reported screening coverage to reach a maximum of 59%, with 41% of these women ac-

cessing screening outside the national program (8). Following the implementation of a state-funded human papillomavirus (HPV) vaccination program in Latvia (2010), uptake of the HPV vaccine has been low (53.4% in 2012) (12).

Not all eastern European countries face the same issues when trying to encourage CS participation; however, there are commonalities as a result of their shared experiences during the Soviet era. Taking Latvia as representative of many eastern European countries, we have performed an in-depth analysis of the knowledge, behaviors, and attitudes regarding CC prevention strategies in women to inform screening programs and educational campaigns.

Methods

Ethical approval was obtained from the University of Latvia ethics commission board (August 13th, 2015).

A mixed-methods study of surveys and one-to-one semi-structured qualitative interviews was conducted. Latvian women in Riga age 20 and older were eligible for the study. The age criterion was not based on the Latvian CSP recommendations (25–69 years) because many women are opportunistically screened outside the program (10).

Survey

The survey was developed following a literature search and pre-protocol patient and public involvement work (PPI). The 28-item survey explored existing screening behaviors, CC and CS knowl-

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edge, and HPV and HPV vaccine awareness. Pre-validated questions (13) were incorporated into the survey. The overall face validity of the instrument was confirmed by peer review from experts within the specialty and the PPI groups. The survey was developed in English and was translated into Latvian by the Latvian researchers.

A purposive sampling approach was adopted between September and October 2015 to recruit patients from a state-funded General Practitioner (GP) surgery in Riga and colposcopy clinics at Riga East Clinical University Hospital. The women completed the anonymous survey prior to their consultations. The data were entered into the Statistical Package for Social Sciences (SPSS Inc. Chicago, IL, USA), version 22. Descriptive statistics were generated for the responses and a chi square test or Fisher exact test was used for analysis. *P*-values were assessed using two-sided tests, and statistical significance was taken as a cutoff of *p* ≤ 0.05.

Semi-structured interviews

Participants volunteered at the end of the survey to be interviewed. The objective of the interviews was to obtain a detailed understanding of screening behaviors, access to healthcare in Latvia, and issues surrounding HPV testing and vaccination. HP (first author) conducted the interviews in English, and an interpreter was offered to the participants.

The interviews were audio recorded with permission and transcribed verbatim into English. An inductive framework method of thematic analysis (14) was used for transcript analysis, facilitated by NVivo software.

Table 1 | Socio-demographic characteristics.

Variable	Value
Age (median/range)	36 (21–71)
Relationship status, <i>n</i> (%)	
Married	78 (49)
Widowed	4 (3)
Divorced	11 (7)
Separated	6 (4)
In a civil partnership	17 (11)
In a relationship	18 (11)
Cohabiting	18 (11)
Single	6 (4)
Education, <i>n</i> (%)	
No formal qualifications	2 (1)
Trade/technical/vocational	38 (24)
GCSE / O level or equivalent	29 (18)
A level or equivalent	7 (4)
Bachelor's degree	49 (31)
Graduate degree	28 (18)
Other	5 (3)
Employment status, <i>n</i> (%)	
Employed full time	114 (72)
Employed part time	13 (8)
Unemployed	12 (8)
Retired	5 (3)
Housewife	14 (9)
Ethnicity, <i>n</i> (%)	
Latvian	151 (96)
Russian	3 (2)
Polish	2 (1)
Other	2 (1)
Country of birth, <i>n</i> (%)	
Latvia	154 (97)
Russia	3 (2)
Other	1 (1)

GCSE = General Certificate of Secondary Education.

Results

Survey

Altogether, 158/200 surveys were completed, 25 from primary care and 133 from secondary care, with an overall response rate of 79%. Detailed demographics are presented in Table 1.

Most women (67%, *n* = 105) understood that the smear test is a screening tool to identify precancerous cervical changes and that it lacks diagnostic ability (72%, *n* = 113; Table 2). Around half (53%, *n* = 83) selected only the true options for the question “Why are cervical smear tests performed?”

Most women had heard of HPV (73%, *n* = 115/157) but demonstrated limited knowledge of HPV (Table 3). Among women who had either heard of HPV or were not sure if they had (10%, *n* = 16), median scores for general HPV knowledge and HPV testing ques-

Table 2 | Cervical screening behavior and knowledge.

Question	Response	Value
Why are cervical smear tests performed? (select all true options) (<i>n</i> = 157), <i>n</i> (%)		
To diagnose precancerous cervical cells	Correct	105 (67)
	Incorrect	52 (33)
To diagnose cervical cancer	Correct	113 (72)
	Incorrect	44 (28)
To detect STDs	Correct	151 (96)
	Incorrect	6 (4)
As part of a full gynecological exam	Correct	121 (77)
	Incorrect	36 (23)
Aware of free cervical screening in Latvia? (<i>n</i> = 155), <i>n</i> (%)		
	Yes	135 (87)
	No	20 (13)
Source of information about smear tests? (<i>n</i> = 135), <i>n</i> (%)		
	GP	26 (19)
	Friends	2 (1)
	Smear invitation letter	87 (64)
	Other	24 (18)
Recommended screening commencement age in Latvia? (<i>n</i> = 117), median (range)		
		25 (15–50)
Recommended screening frequency in Latvia? (<i>n</i> = 139), <i>n</i> (%)		
	Don't know	1 (1)
	Every 6 months	10 (7)
	Every year	46 (33)
	Every 3 years	82 (59)
Have you ever had a smear test? (<i>n</i> = 155), <i>n</i> (%)		
	Yes	135 (87)
	No	16 (10)
	Not sure	4 (3)
Age of first smear test? (<i>n</i> = 121), <i>n</i> (%), median (range)		
		25 (18–55)
Country of first smear test? (<i>n</i> = 128), <i>n</i> (%)		
	Latvia	122 (95)
	Other	3 (2)
	Not sure	3 (2)
Timing of most recent smear test? (<i>n</i> = 149), <i>n</i> (%)		
	Never had one	15 (10)
	0–3 years	124 (83)
	4–5 years	8 (5)
	More than 5 years	2 (1)
Always attend for a smear test? (<i>n</i> = 145), <i>n</i> (%)		
	Yes	88 (61)
	No	37 (25)
	Cannot remember	20 (14)

STDs = sexually transmitted diseases, GP = general practitioner.

tions were 7/15 (range 0–15) and 4/6 (range 0–6), respectively. Fewer women responded to the questions about the HPV vaccine; 70% ($n = 90/129$) had heard of the HPV vaccine and only 4% ($n = 5$) had received it.

Younger age was significantly correlated with general HPV knowledge (-0.28 [Spearman's rho correlation coefficient]: $p < 0.01$) and HPV vaccine knowledge (-0.21 [Spearman's rho correlation coefficient]: $p = 0.01$). Higher educational attainment was associated with a higher HPV testing knowledge score (0.19 [Spearman's rho correlation coefficient]: $p = 0.02$). Neither marital nor employment status showed any significant correlations.

Semi-structured interviews

Ten interviews were conducted; five women from primary care and five from secondary care. Their median age was 35 years (range 20–62 years). Details in parentheses following quotes represent the participant's identification number (P) and age (in years). An asterisk (*) marks quotes obtained via an interpreter.

Doctor-patient relationship

It was apparent that there was considerable trust vested in doctors; their advice was not to be questioned nor was it felt necessary to conduct independent research. The women were willing to alter health behaviors (e.g., frequency of CS) based purely on the recommendation of the doctor: "So if the doctor says that you need to do this, she will do that. She is not one of those people who spend hours researching the internet, yes" *(P8, 43).

Annual gynecological checkups

The practice of annual gynecological checkups was prevalent, and it appears to have been passed down the generations and accept-

ed as the norm. Reproductive organs were seen as more valuable than other organs, whereby they needed to be protected, hence the need for prophylactic screening: "but I know from childhood, from teenage years, that you have to go to the gynecologist at least every year to check everything" (P4, 34).

Despite obvious concern regarding their reproductive organs, the women had little understanding of the examinations or tests that were performed during their annual checkups. The gynecologist was responsible for determining which tests were required: "she comes and the gynecologist does A, B, and C" *(P9, 37).

Cervical screening behaviors: motivators

Most women attended CS annually, with some going as frequently as every 3 to 6 months. They described a feeling of "fear" that something would be missed if they waited the recommended 3 years, and having annual smears made them feel "safe." The reason for the national CSP not recommending more frequent screening was believed to be financially motivated: "I think it's just connected with . . . government money, but I think every woman should go at least once a year at her own expense" (P5, 35).

The practice of annual smears and checkups appeared to be embedded in women's culture, and the gynecologist further reinforced it. Their motives for screening included the gynecologist recommending it: "just as usual" (P3, 62), "I think you have to do this" (P4, 34), and "because I was pregnant and it's normal to know about my health" (P5, 35). It was not clear whether they fully understood that the CS was different from the annual gynecological checkup.

Cervical screening behaviors: barriers

Perceived barriers to screening included that many women may not have heard of CS, and so they simply ignore the invitation let-

Table 3 | Human papillomavirus (HPV) and HPV vaccine knowledge.

General HPV knowledge ($n = 116$)*	Correct, n (%)	Incorrect, n (%)
HPV is very rare	110 (95)	6 (5)
HPV always has visible signs or symptoms	107 (92)	9 (8)
HPV can cause cervical cancer	88 (76)	28 (24)
HPV can be passed by genital skin-to-skin contact	27 (23)	89 (77)
There are many types of HPV	54 (47)	62 (53)
HPV can be passed on during sexual intercourse	59 (51)	57 (49)
HPV can cause genital warts	26 (22)	90 (78)
Men cannot get HPV	107 (92)	9 (8)
Using condoms reduces the risk of getting HPV	47 (41)	69 (59)
HPV can be cured with antibiotics	105 (90)	11 (10)
Having many sexual partners increases the risk of getting HPV	55 (47)	61 (53)
HPV usually does not need any treatment	7 (6)	109 (93)
Most sexually active people will get HPV at some point in their lives	24 (21)	92 (79)
A person could have HPV for many years without knowing	59 (51)	57 (49)
Having sex at an early age increases the risk of getting HPV	32 (28)	84 (72)
HPV testing knowledge ($n = 91$)		
An HPV test can tell how long you have had an HPV infection	82 (90)	9 (10)
If a woman tests positive for HPV she will definitely get cervical cancer	85 (93)	6 (7)
An HPV test can be done at the same time as a smear test	58 (64)	33 (36)
HPV testing is used to indicate if the HPV vaccine is needed	73 (79)	18 (20)
When you have an HPV test, you get the results the same day	80 (88)	11 (12)
If an HPV test shows that a woman does not have HPV, her risk of cervical cancer is low	41 (45)	50 (55)
HPV vaccine knowledge ($n = 80$)		
HPV vaccines require two doses	35 (44)	45 (56)
HPV vaccines offer protection against all sexually transmitted infections	78 (98)	2 (2)
HPV vaccines are most effective if given to people who have never had sex	57 (71)	23 (29)
Someone who has had the HPV vaccine cannot develop cervical cancer	70 (88)	10 (12)
HPV vaccines offer protection against most cervical cancers	45 (56)	35 (44)
One HPV vaccine offers protection against genital warts	7 (9)	73 (91)
Girls who have had the HPV vaccine do not need to have smear tests when they are older	78 (98)	2 (2)

ters. Access was an issue, particularly for women who resided in remote villages. Time played a role in two ways; the length of time that one would have to wait to receive an appointment, and that women were generally too busy to make time. Finally, because they were asymptomatic, screening was not prioritized.

Knowledge and understanding of cervical screening, cervical cancer, and HPV

Many women were aware of the national CSP in Latvia, mainly from receiving the smear invitation letter. Most women were able to provide an accurate description of what a smear test involved and its purpose; however, others were less clear and believed that it was testing for “some kind of fungus or stuff like that” (P1, 20).

Knowledge regarding the management of an abnormal smear was poor, with an assumption that further examination was required but no knowledge of what form this might take. There was a lack of awareness of the consequences of multiple treatments.

The scale of the disease burden in Latvia was underestimated: “nobody has heard about cancer of the cervix” (P1, 20).

Risk factors for developing CC were stated as multiple partners, hereditary, lifestyle, multiparity, and a connection to uterine fibroids. The causal relationship between HPV and the development of CC was acknowledged, but not the strength/seriousness of the association.

Many had heard of HPV, but detailed knowledge was variable. The prevalence of HPV in Latvian women was underestimated. Some women correctly identified that HPV was transmitted through sexual contact, whereas others were not sure how it was transmitted.

The women claimed to have heard of the HPV vaccine when prompted, but had limited knowledge: “She does know that the vaccine is intended to prevent CC, but she does not know the connection between the vaccine and HPV” *(P8, 43).

Beliefs, perceptions, and attitudes toward HPV

Latvia is described as a religious country, and therefore the women believed that HPV would not be spoken of openly, stemming from the misconception that HPV infection is synonymous with sexual promiscuity: “Latvians are quite religious, so they don't like to talk about it, especially like when a person is changing partners quite often” (P10, 30).

Negative views were expressed toward the HPV vaccine because it was felt that the available scientific information was inadequate. HPV was felt to be a relatively new concern: “30 years ago we never heard about this problem” (P4, 34). Fear of the side effects of such a new vaccine was reported as a major barrier to vaccine acceptance.

Emotions

“Scared” and “shame” were the most frequently quoted emotions. Participants were “scared of the unknown” (P1, 20), “scared because . . . they will discover something” (P10, 30), and “afraid of cancer in case it develops within 3 years” (P3, 62). They fear that something may be missed or are afraid of starting a new relationship out of fear that they may contract the virus again.

“Shame” was used alongside the possibility of discussing sexual behaviors with parents or healthcare professionals: “not everybody talks about it, and in different cultures it's like a shame

to talk about it” (P10, 30).

Discussion

This mixed-methods study highlights the complex interactions that exist between knowledge, self-perceived health, and importance of health that govern CC prevention uptake. There was a lack of awareness of the high incidence of CC in Latvia, resulting in poor self-perceived susceptibility, as well as an ingrained cultural practice of annual gynecology checkups and a mistrust of the government-funded programs.

Attendance for screening in this cohort was higher (87%) than the national screening coverage of 59% (8), which is consistent with the majority of participants for the survey being recruited from colposcopy clinics. Worryingly, 14% (19/130) of the women recruited from colposcopy clinics claimed they had not previously had a smear test. It was unclear whether all the women interviewed understood the difference between annual gynecological checkups and CS. An Estonian study found that a recent visit to the gynecologist was the most commonly stated reason for not attending CS (15). Attending screening opportunistically was prevalent in this cohort. One pitfall of opportunistic screening is the performance of unnecessary diagnostic procedures and treatments (16). Pelvic examinations have been described by women as causing discomfort and embarrassment (17); a bad experience with an unnecessary pelvic examination may jeopardize future participation with CS (18). The practice of gynecological screening is also prevalent in other eastern European countries (19, 20), which might explain the low uptake of national CS in Eastern Europe (4, 5).

Overall there was good awareness of the Latvian national CSP, and therefore lack of compliance would suggest there is an issue with acceptability and/or communication about the justification of the recommended practice. Healthcare professionals may also find the national program problematic because some women cited their gynecologist's recommendation as a reason for opportunistic CS. This study showed that there was a great amount of trust placed in the advice of the doctor, and therefore one could argue that to increase participation with national CS the focus should be on changing the attitudes of healthcare professionals.

The survey and interviews revealed that detailed HPV and HPV vaccine knowledge was poor among Latvian women; although HPV testing is not routinely part of the CSP in Latvia (7), the HPV vaccine has been available since 2010 (21). Concerns regarding HPV vaccine side effects and that the vaccine is “new/experimental” have also been found in Romanian mothers, among whom there is low vaccine uptake (22), despite the HPV vaccine not being found to be associated with any serious adverse effects (23). Mothers' own participation in preventative healthcare has been shown to be associated with enhanced engagement of daughters with screening and vaccination (24). In our cohort it was evident that women had a heightened sense of protection for their reproductive organs but did not fully appreciate the benefits of primary prevention. Therefore, only the practice of annual gynecological checkups was being passed down through the generations.

Overall there was poor knowledge about CC and its causes. Lack of knowledge and awareness has been associated with poor screening attendance (25). Poor knowledge levels can result in lower self-perceived susceptibility. It is difficult to accurately assess the CS behaviors of the women in this study because many did not understand the difference between their routine gynecological

logical checkup and CS. It is possible that they had a smear test performed at each of their checkups or that they never had a smear test performed. The opportunistic screening described was performed in the private sector, and therefore no databases exist and implementing any quality assurance is difficult.

Participation in organized CS that has good quality assurance can be increased through greater patient engagement. To achieve this, awareness of CC needs to be increased, and the use of media outlets provides one possible method of accomplishing this. In addition, healthcare professionals have a vital role to play in patient education and in endorsing participation in the national CSP.

The study had some limitations. Participants were recruited from a single GP practice and single hospital institute, which could result in facility bias and may not be representative of the general population. The interview participants might represent a group who are inherently more likely to engage with screening because they volunteered to take part in the study. Targeting women who do not attend screening is very challenging, and it is just as important to look at what motivates women to attend screening as it to explore the barriers to screening in non-attenders (26).

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Conclusions

The current CS behaviors in Latvian women appear to be governed by their lack of knowledge of the principles of screening and causes of CC. The results could be extrapolated to many eastern European countries that share a common Soviet heritage with Latvia, and they could give clinicians and policymakers insights into the misconceptions that need to be overcome to achieve greater patient engagement with CC prevention initiatives.

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