Cervical screening self-test: to do or not to do?

Decat Elena, KU Leuven

Promotor: Van den Bruel Ann, KU Leuven

Master of Family Medicine

Masterproef Huisartsgeneeskunde
Academiejaar: 2025 – 2026

©Copyright by KU Leuven

Deze masterproef is een examendocument dat niet werd gecorrigeerd voor eventueel vastgestelde fouten. Met uitzondering van het door de wet toegestaan gebruik, is zonder voorafgaande schriftelijke toestemming van de auteur(s) het overnemen, kopiëren, gebruiken of realiseren van deze uitgave of gedeelten ervan verboden. Voor aanvragen tot of informatie in verband met het overnemen en/of gebruik van gedeelten uit deze publicatie, wendt u zich tot de KU Leuven, Faculteit Geneeskunde, Campus Gasthuisberg O&N2, Herestraat 49 – bus 400, 3000 Leuven.

Voorafgaande schriftelijke toestemming van de promotor(en) is eveneens vereist voor het aanwenden van de in dit afstudeerwerk beschreven (originele) methoden, producten en programma's voor commercieel nut en voor de inzending van deze publicatie ter deelname aan wetenschappelijke prijzen of wedstrijden

Table of contents

Abstract 4
Introduction 5
Methodology 8
Results 10
Discussion 16
Conclusion 18
Acknowledgement 19
References 20

Abstract

Introduction:
Cervical cancer screening reduces morbidity and mortality, yet participation in Flanders remains suboptimal at 66%. Self-collected human papillomavirus testing may increase uptake, particularly among underserved populations. We explored women's willingness to use self-testing and identified barriers to cervical cancer screening.

Methods:
We conducted an exploratory qualitative study using semi-structured individual interviews between February and September 2025 in Flanders. Women aged 25–64 years who were fluent in Dutch were recruited through purposive, convenience, and snowball sampling. Sixteen women participated. Interviews were recorded, transcribed, pseudonymized, and analyzed using thematic analysis.

Results:
Participants ranged from 25 to 57 years (median 44.5 years). Most had higher education, and all were Belgian nationals. We identified three major themes: clinician-based screening, attitudes toward self-testing, and strategies to improve participation. Preferences for screening by a gynecologist (7/16) and general practitioner (6/16) were balanced. Comfort with the clinician was more important than clinician gender. Women described pain, embarrassment, and practical barriers as challenges to clinician-based testing. Most participants viewed self-testing positively, citing time efficiency, home comfort, and autonomy. However, concerns about reliability, incorrect sample collection, and loss of comprehensive examination were common. Some women anticipated procrastination if self-testing required self-initiation. Participants emphasized that clear instructions, instructional videos, multilingual materials, reminders, and government-led awareness campaigns are essential to increase uptake. Most believed the test should be fully reimbursed.

Conclusions:
Women showed strong interest in self-testing, but implementation must address concerns about reliability, instruction clarity, and follow-up care. Self-testing alone may not increase screening in already adherent populations but could reduce barriers for some women. Policymakers should combine self-testing with structured reminders, reimbursement, and targeted awareness strategies to maximize impact.

Introduction

In Belgium, 610 cases of invasive cervical cancer and 6,638 cases of in situ cervical cancer were diagnosed in 2023 (1). Diagnoses were made in individuals of all age groups starting from the age of 15, with the majority occurring between the ages of 40 and 64 years for invasive cancers and between 25 and 34 for in situ cancers (1–3). Between 1999 and 2020, the incidence of invasive cervical cancer declined slightly but significantly, by approximately 1% per year, whereas the incidence of in situ cervical cancer increased significantly by 11.2% per year over the same period. This trend is most likely the result of cervical cancer screening which aims to detect lesions early (3).

Consistent with the incidence trend, mortality from invasive cancer declined significantly and more markedly, by 2.5% per year between 2003 and 2020. Between 2015 and 2020, this trend appears to have stabilized. Mortality increases with age, with a crude rate of 0.5 per 100 000 for individuals aged 25 and 4.5 per 100 000 for those aged 60 during the period from 2017 to 2020 (3).

Treatment differs by cancer stage. For in situ cancer, conization may be sufficient. There are conflicting findings regarding morbidity following conization. Simoens et al. reported an increased risk of preterm delivery after excision (OR 2.33), particularly when the cone depth exceeded 10 mm (OR 4.55), though no association was found with a lower birthweight (4). In contrast, five years later, van Velthoven et al. found no increased risk of preterm delivery but reported a significantly lower birthweight in a similarly sized sample (5).

For invasive cancer, hysterectomy may be the treatment of choice. Post-hysterectomy, women may experience pain, disturbed sleep, fatigue, depressed mood and anxiety (6). Additional treatment options include radiation, chemotherapy and immunotherapy, with adverse events varying depending on the location and type of treatment. Naert et al. described both physical and psychological impacts on sexuality in cervical cancer survivors following curative treatment (7).

Belgian recommendations

Screening for cervical cancer was implemented in the 20th century as a means to lower mortality, because cervical cancer follows a predictable but slow sequence allowing precancerous states to be identified and treated (8). Historically, cervical cancer screening was conducted through a cytological examination, namely the Papanicolaou test (Pap test). In the revised Domus Medica guideline of 2017, it is recommended that the Pap test be replaced with a human papilloma virus-test (HPV test) for women over the age of 30. These recommendations are based on international literature and the findings of the Belgian Health Care Knowledge Centre (Federaal Kenniscentrum voor de Gezondheidszorg, KCE) report number 238As (9).

The KCE report identified a clear correlation between cervical cancer and the presence of a local infection with a HPV virus. These viruses are prevalent in our population (10). The average life time prevalence of a HPV infection among women with at least one male sex partner is around 84.6% according to Chesson et al (11). Twelve types of HPV are classified as carcinogenic: HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58 and 59. Among these, types 16 and 18 are the most prevalent, together accounting for approximately 70% of cervical cancer cases. Eighty percent of these

infections are naturally resolved by the immune system within a three-year period, while only 3% progress to cervical (pre)cancer within seven years (12).

One of the advantages of the HPV test is that it is more sensitive than the Pap test (13). This indicates that the probability of developing an invasive cancer subsequent to a normal HPV test result is considerably lower than that following a normal Pap test. As a result, the time interval between two HPV tests can be safely extended to five years. This constitutes a second significant advantage of HPV testing. However, the test has a lower specificity because not all high-risk HPV infections will lead to precancerous changes, which may result in more unnecessary investigations or treatments.

It is important to note two aspects of this recommendation. Firstly, it has been demonstrated that HPV tests are not more effective than Pap tests in women under the age of 30. It is therefore not recommended that HPV tests be used as a screening method in this age group. Secondly, it is still necessary to conduct screening following vaccination for HPV viruses because vaccination does not provide protection against all carcinogenic subtypes. Furthermore, there is currently insufficient reliable scientific evidence to ascertain the duration of protection afforded by the vaccines (10).

Belgian screening program

In Flanders, the Centre for Cancer Detection (Centrum voor Kankeropsporing, CvKO) invites women aged between 25-64 years to participate in the cervical cancer screening program. An invitation is sent by letter. Women aged 25-29 years are advised to do a Pap smear every three years, while women aged 30-64 years are advised to do a HPV test every five years. Should these time intervals be respected, the screening is fully reimbursed and participants are only required to pay the co-payment for the doctor's appointment (14,15).

Participation

The screening rate in Flanders in 2023 was 66.1%. This is comparable to the screening rate for breast cancer in 2023, which was 65.6%. The compliance rate for cervical cancer screening was found to be slightly lower in the youngest and oldest age groups (60.8% in the 25-29 age bracket and 59.7% in the 60-64 age bracket) (16).

A number of studies conducted globally have examined the discrepancies in participation in screening programs among women. The most frequently recurring factor is health literacy (17–20). Furthermore, knowledge of the healthcare system (20), wealth index (21) and sexual orientation and sexual functioning (18,22) have also been identified as influencing factors in participation. In 2018, De Maesschalck et al demonstrated in a pilot study that the provision of self-tests to women who do not participate in the Belgian cancer screening program resulted in an increase in the screening rate in the general practice (23).

Self-tests

A number of studies have been conducted to investigate the correlation between self-collected samples and clinician-collected samples. Some studies demonstrate no statistically significant differences in outcome, with a correlation coefficient of approximately 0.93 (24,25). Szarewski et al observed a notable decline in the specificity of self-collected samples, yet no discernible discrepancy

in sensitivity between self-collected and clinician-collected samples (26). In contrast, the study conducted by Mangold et al demonstrated a markedly reduced sensitivity in self-collected samples relative to clinician-collected samples with colposcopy and cervical biopsy as gold standard, with respective concordance rates of 68% and 78% (27). In conclusion, the results of the studies reviewed here are conflicting with regard to the sensitivity and specificity of the self-collected test in comparison to the clinician-collected tests. Nevertheless, the majority of authors agree that self-collected tests can be useful in populations with a lower screening rate.

Several studies examine the response rate among non-attending women by comparing the distribution of self-sampling kits with reminders from the national screening program for Pap smear tests. These European studies conclude that offering a self-sampling kit can increase participation in cervical cancer screening among non-attendees (28–30). However, these studies do not address the background of the non-attendees.

The aim of this study is twofold: firstly to explore whether women from underserved groups such as women with a recent immigration history or low health literacy skills would be willing to self-swab for cervical cancer. Secondly, what the barriers are that these women encounter in relation to cervical cancer screening and whether self-swabbing may overcome some of these barriers.

Methodology

Research design

To explore whether women are willing to self-swab for cervical cancer and to identify the barriers associated with the screening program, we conducted an explorative qualitive study. Our aim was to investigate women's ideas, experiences, and concerns regarding (self-)swabbing for cervical cancer.

To this end, we used individual semi-structured interviews as our primary method of data collection. This approach allows for in-depth exploration of participant's personal views while maintaining consistency across interviews through a predefined interview guide.

We aimed to recruit a diverse group of women, with variation in age, nationality, ethnic origin, religion, gender, sexual orientation and educational level. To assess the diversity of our sample, participants were asked to complete a short demographic questionnaire. This questionnaire will be pseudonymized in order to keep in mind the characteristics of the women who give the answers. The questions from this form can be found in the annexes.

Setting and sampling

Women (biological sex) between the ages of 25 and 64 who were fluent in Dutch were recruited through purposive sampling. Participation was entirely voluntary.

Recruitment: to reach a diverse group of women, we distributed posters both physically and by mail at various community locations, including social restaurants, community centers, schools, places of worship and general practices in the city of Leuven, Belgium. The posters included the email address of the main investigator, allowing interested individuals to ask questions or express their willingness to participate. Due to low response rates across recruitment sites, the final sample was primarily obtained through convenience sampling complemented by snowball sampling to enhance participant enrollment. Upon initial contact, the main investigator provided more detailed information about the study, the informed consent (ICF), and practical details regarding the interview's location and scheduling.

Semi-structured interviews were conducted either online or in-person at the researcher's house, based on participant preference.

Sample size

The study aimed to conduct 20 interviews.

Data collection

Data were collected through semi-structured interviews, moderated by the investigator. The interview began with more closed questions to warm-up and involves in open questions so all experiences, concerns and thoughts could be addressed. Although the questions were guided by a interview guideline (appendix 1), the phrasing and sequence could differ according to the course of the interview. It is important that participants could talk freely and without influence of others. Therefore, the interviews were one on one and a secure environment was created.

The sessions were recorded and transcribed by Microsoft Teams. These transcriptions were revised by the investigator and the records were deleted after revision. The transcripts of the interviews didn't contain any names or other data that makes identification possible. The transcripts are stored in a secured computer document that is only accessible by the promotor.

The participants were recruited and interviewed between February 2025 and September 2025.

Data-analysis

Data will be analyzed using the thematic analysis of Braun and Clarke. They propose six steps to identify, analyze and report patterns (themes) within data. Firstly familiarize yourself with your data, secondly generate initial codes, third search for themes, fourth review these themes, fifth define and name these themes, and lastly produce the report (31). Throughout these steps, themes were combined, split up, renamed, added and discarded until we found three main themes that matches with the content of the transcripts.

Ethical considerations

This study received ethical approval from the UZ/KU Leuven ethical committee (Ref. No MP033816) (Appendix 2). Participants received a written information sheet detailing the study's purpose, procedures, and their rights. Written informed consent was obtained prior to each interview. All transcriptions were pseudonymized. These data will be stored for ten years in a secured network hard drive of the KU Leuven in accordance with institutional data policies. The audiovisual data will be deleted. Participation was entirely voluntary, and individuals were free to withdraw from the study at any point without providing a reason.

Results

Sixteen women between the ages of 25 and 57 years were included in the study. Data saturation was reached after 16 interviews, as no new themes or insights emerged. The main participant characteristics are presented in table 1. The median duration of the interviews was 10.5 minutes (Q1= 9 and Q2= 14). All participants were of Belgian nationality and Caucasian origin. Fourteen interviews were conducted online, while two were conducted in person at the researcher's home, based on participant preference.

Age	**Amount**
25-35y	7
36-45y	1
46-55y	7
56-65y	1
Median	44.5y (Q1= 27.5, Q2= 54)
Religion	
Non-religious	10
Christian	3
Unclear	3
Gender	
Women	15
No label	1
Sexual orientation	
Hetero	12
Bisexual	2
No label	2
Educational level	
Master	8
Bachelor	7
Graduate	1

Table 1: characteristics participants

The analysis revealed three primary themes concerning experiences with conventional clinician-based testing (1), attitudes toward self-testing (2) and strategies to improve cervical cancer screening rate (3).



Figure 1: themes and subthemes

1. Experiences with conventional clinician-based testing

A. Preference gynecologist

Seven of the sixteen women preferred to consult a gynecologist. For some participants, this preference is habitual, as they continued regular gynecological check-ups following their pregnancies. Another commonly cited reason was the perception that concerns related to female reproductive organs should be addressed by a specialist, namely a gynecologist. Additionally, two women reported feeling more comfortable undergoing an intimate examination with a gynecologist due to a less personal relationship compared with their general practitioner.

> *"Because … with my teeth I go to the dentist, and yes, with my reproductive organs I go to the specialist in that domain." (participant 11, 53 years old)*

B. Preference general practitioner

Six of the sixteen women preferred consultation with their general practitioner. The primary reason cited is the established personal relationship with their general practitioner, with participants reporting reluctance to undergo cervical screening with a physician they have not previously consulted. Similarly, habitual behavior influenced this preference, as these women are accustomed to attending their family doctor for screening and see no reason to consult a gynecologist instead. Finally, practical considerations were mentioned, including the relative ease of scheduling an appointment with a general practitioner compared with a gynecologist.

"Um, I always… I always go to the general practitioner. I've only ever been to the gynecologist for my deliveries, and after that actually never again, because… well, I miss that connection there." (participant 3, 57 years old)

C. Clinician's gender

Eight out of the sixteen women reported no preference regarding the clinician's gender. Seven participants expressed a preference for a female clinician; however, most indicated that they would likely still allow a male clinician to perform the test, although they perceived this as a barrier. One woman reported a preference for a male clinician, explaining that female clinicians are more elaborate and more cautious. Overall, the majority of the participants emphasized that personal comfort with the clinician was more important than the clinician's gender.

"I would like it to be done by a woman. I'm not going to say that it's a deciding factor in whether I do it or not. It's not that I wouldn't do it if the only option were a man, but if I can choose, I would prefer a woman to do it." (participant 2, 25 years old)

2. Attitudes toward self-testing

A. Advantages

A commonly cited advantage of self-testing is its efficiency. It is time-saving, requires no appointment, and eliminates the need for travel. In addition, temporal flexibility is frequently emphasized, as individuals can perform the test at a time that best suits their personal schedule.

A second advantage relates to the comfort of the home environment. Being at home may increase feelings of ease and allows individuals to proceed at their own pace. The option to pause or discontinue the procedure at any point further contributes to this sense of comfort.

"Um, yes. I think that's mainly what's convenient about it. You do it at home, you do it when you're comfortable. Um, yes, and if you can then send it off, especially that… You don't have to take time off work to go to a doctor." (participant 5, 51 years old)

A third frequently reported advantage is the autonomy associated with self-testing. As the procedure involves an intimate examination, some individuals prefer self-testing because it eliminates physical contact with a clinician. Several women also reported pain associated with clinician-performed testing; self-testing provides greater control over the procedure, which may mitigate discomfort. Conversely, some women expressed reluctance to engage in testing when pain is anticipated.

"You're also not going to hurt yourself. Many … many women find it a bit uncomfortable and … and do feel some pain. I think if you can do it yourself, you can stop, you can maybe start again if it doesn't work." (participant 16, 49 years old)

One participant indicated that she did not experience reluctance to consult a physician for this screening, and consequently did not consider home-based screening to offer a meaningful advantage.

B. Disadvantages

Several women express concerns regarding the reliability of self-testing. These concerns primarily relate to perceived difficulty of correctly performing the procedure and the risk of collecting an inadequate or incorrect sample. Some participants indicate that their confidence in self-testing would increase once the method has been more extensively validated in the general population and after gaining personal experience with its use.

"I would be afraid of making mistakes. And I would be more inclined to trust it if a doctor had done it, knowing that they do everything strictly by the book, or something like that. But if, after a few years, people are using it and saying, well, after ten years they say, "Yes, it's just as reliable," then yes, I would trust it." (participant 7, 26 years old)

In particular, women who prefer testing by a gynecologist report concerns about the absence of a comprehensive clinical examination. They emphasize the importance of additional assessments, such as breast examination and the clinician's visual evaluation of the genital region.

"I think that I … that I would feel much more reassured if the doctor … and not only that. It's not just about the smear test. It's also about the doctor taking a look at that moment. Does everything look okay? And … and … so it's more than just that smear test. Because that's usually also the only time you lie there with your legs open when you don't actually have any complaints."
(participant 5, 51 years old)

Furthermore, some participants acknowledge a tendency toward procrastination, indicating that they may delay completing the test or forget to perform it altogether. Others report apprehension about the administrative tasks associated with testing, which may represent an additional barrier to uptake.

3. Strategies to improve cervical cancer screening rate

A. General

Several participants report perceiving less awareness-raising related to cervical cancer compared to colon and breast cancer. While they acknowledge the importance of prevention, many describe a lower sense of urgency regarding cervical cancer, attributing this to limited personal familiarity with affected individuals and to the perception that cervical cancer is not a highly lethal disease. Participants emphasize that awareness-raising initiatives should be led by governmental bodies, the media, educational institutions, and healthcare professionals.

In addition, several participants report limited knowledge regarding to the recommended screening intervals for cervical cancer. Nearly all participants identify reminders sent by post or via digital platforms, such as Mynexuz, as effective tools to improve screening uptake. Posters in the waiting rooms were also mentioned several times.

Peer communication is also described as an important mechanism for increasing awareness. Some participants report discussing cervical cancer screening with friends and actively encouraging them to participate. Normalizing cervical cancer screening as a topic of conversation through healthcare providers, media, and government initiatives may contribute to increased screening rates.

"Sensitization, I think. In all possible places, starting already at school: young girls. Throughout the entire school career. And then mothers who can be sensitized via "Kind en Gezin", and … and the hospital. Via the general practitioner, via women's associations from, well, all kinds of cultures as well, to be sure that we reach everyone and not only the "Belgian Belgians". Yes, as broadly as possible, I think." (participant 4, 40 years old)

One participant indicated that religious beliefs may influence women's willingness to participate. However none of the Christian participants in this study reported reluctance to participate in screening due to their beliefs. Unfortunately, the sample did not include participants from other religious backgrounds (aside from non-religious individuals and those with unspecified beliefs) to further support or reject this hypothesis.

"I think that, um … depending on the religion, it might be difficult to get certain people, um …, to do a self-test or even a gynecological examination. So I think it might also have something to do with religion, in terms of how much you can reach some people for something like this." (participant 16, 49 years old)

B. Self-testing

As discussed above, many participants reported reluctance due to fear of performing the procedure incorrectly, highlighting the need for clear and unambiguous instructions for use. Several participants suggested providing a short instructional video, whereas others preferred pictorial instructions similar to those used in colorectal cancer screening programs. The importance of simplicity in the instructions was repeatedly emphasized.

"Um, perhaps you should, how should I put it, ensure that the instructions you provide are clear enough that, so to speak, everyone, whether they have studied or not, can understand them. **"** *(participant 3, 57 years old)*

Additionally, one participant highlighted the need for multilingual materials, noting that the country has three official languages and a substantial population of foreign origin.

"If it is sent, for example, by post, then there definitely needs um …, to be attention to multilingualism. Um … we already live in a multilingual country: in the sense of French, Dutch and German. But then, um, also to the people of foreign origin, who might more easily be left out – especially the more vulnerable groups. So I think we really need to pay attention to that, by using the um …, appropriate language and maybe also pictograms, without relying too much on text." (participant 4, 40 years old)

Participants expressed divergent views regarding the acceptable cost of the self-test. Most indicated that its price should not exceed that of screening performed by a general practitioner or gynecologist, although many acknowledge that they were unaware of the current out-of-pocket costs for these services. Several participants stated they would be willing to pay, citing the importance of preventive healthcare, but noted that financial barriers could limit access for some individuals. In addition, some participants emphasized that other population-based screening programs, such as mammography and colorectal cancer screening, are fully reimbursed, and argued that the self-test should be similarly covered.

“I haven’t thought about that yet (laughs). Um, yes, I think if the price is about the same as what you would pay at the general practitioner or gynecologist or whatever, that would definitely be okay for me. It doesn’t … it doesn’t necessarily have to cost much less for me or anything. It wouldn’t stop me.” (participant 9, 33 years old)

“I actually think that if it is cancer prevention, it should be free for every woman, because there shouldn’t be a gap for something life-saving like that between those who can afford it and those who cannot. I think the government should reimburse it.” (participant 7, 26 years old)

Discussion

Our findings indicate substantial heterogeneity in preferences and experiences related to cervical cancer screening, underscoring the difficulty of identifying a single “optimal” testing procedure applicable to all individuals. A consistent theme across participants, however, was the importance of feeling comfortable during the screening process, whether this comfort stemmed from a long-standing relationship with a general practitioner or from consultations with a gynecologist seen only intermittently.

Pain and the perceived discomfort of the examination were frequently cited by participants as barriers to screening and as reasons for postponing the examination. This finding was not identified in the existing literature. Several participants reported difficulties in convincing friends to participate in screening because these individuals perceived the examination as unnecessary. The literature, however, demonstrates that early detection probably reduces the incidence of invasive cervical cancer significantly. Nearly all participants emphasized the need for increased sensitization through governmental bodies, the media, educational institutions, and healthcare professionals to improve screening uptake. They perceived higher health literacy as a key factor in enhancing screening rates, a finding that is consistent with previous research.

Additionally, all participants were either already attending regular screening or intended to do so. Consequently, the introduction of the self-test in this population would not be expected to increase overall screening uptake. Opinions about how much it could cost varied greatly. Nevertheless, nearly all participants perceived the self-test as advantageous and indicated a willingness to use it if clear instructions were provided.

Methodological considerations

The aim of this study was to include a heterogeneous sample of women, with respect to age, ethnicity, educational level age, nationality, ethnic origin, religion, gender, sexual orientation and educational level. To achieve this, recruitment efforts were conducted across a range of community settings, including social restaurants, community centers, schools, places of worship, and general practices. Despite these targeted strategies, multiple challenges were encountered in enrolling participants from diverse backgrounds. These challenges may be related to the sensitive nature of the research topic, the requirement for proficiency in Dutch, or the predominantly online format of the interviews, however the relative contribution of these factors remains unclear.

Due to limited response rates, most participants were ultimately recruited through convenience sampling supplemented by snowball sampling. Because the recruiter was a white heterosexual woman of Belgian origin, raised Catholic and with higher educational background, convenience sampling likely resulted in overrepresentation of women with similar sociodemographic characteristics. Medical education was not an exclusion criteria, and therefore potential professional bias could not be minimized.

The sample demonstrated moderate variation in age (median age = 44.5 years). Religious diversity was limited, as most participants identified as non-religious. No variation in nationality was observed, with all participants reported Belgian nationality, and educational diversity was similarly restricted,

as all participants had completed higher education (Table 1). In contrast, in 2024, only 45.3% of the population in Flanders held a higher education degree (32). Consequently, the influence of religion, nationality and educational level on perspectives regarding HPV self-testing could not be assessed.

Participants younger than 30 years of age were also included in the study. According to current Belgian guidelines, women in this age group are screened using cytology (Pap smear) and are not eligible for HPV self-testing. Nevertheless, as this group represents the next generation of women who will be eligible for HPV-based screening, their perspectives provide valuable insights for future implementation of self-testing strategies.

Recommendations for practice and further research

This study aimed to capture women's perspectives on cervical cancer screening, identify persistent barriers to participation, and formulate recommendations for governmental institutions, media, and healthcare professionals to improve screening uptake, based on participants' suggestions. Future research should focus on women who currently do not participate in screening programs to better understand the barriers to participation. In addition, studies including women from more diverse sociodemographic and cultural backgrounds are needed to explore how perceptions of cancer screening programs vary across populations. Including primary language as a variable in demographic questionnaires may improve the characterization of participants' sociodemographic and cultural backgrounds.

Conclusion

In conclusion, within the context of conventional clinician-based screening, preferences for undergoing testing by a gynecologist versus a general practitioner were largely balanced among participants and appeared to be driven primarily by individual considerations. Across the sample, perceived comfort with the healthcare professional emerged as a more influential factor than characteristics such as the clinician's gender.

Self-testing was perceived to offer several advantages, including greater efficiency, increased comfort associated with the home environment, and enhanced autonomy during the testing process. Nevertheless, participants expressed concerns regarding the reliability of self-testing, the lack of a comprehensive gynecological examination, and a perceived risk of procrastination when testing is self-initiated.

To improve screening uptake, participants highlighted the importance of awareness-raising initiatives and the implementation of reminder systems. Suggested modalities included postal reminders, digital notifications, and informational materials displayed in waiting rooms. In addition, participants emphasized the potential value of peer communication in encouraging participation in screening.

Most participants expressed concern about performing the self-testing procedure incorrectly, highlighting the need for clear, user-friendly instructions to support successful implementation.

Overall, participants demonstrated a strong interest in self-testing and generally perceived it as a beneficial alternative or complement to clinician-based screening. The majority indicated a willingness to try self-testing if it becomes available.

Acknowledgement

This master's thesis was completed as part of the Master of Medicine program at the KU Leuven.

The author would like to express sincere gratitude to Ann Van den Bruel for her dedicated supervision, valuable feedback, and continuous support throughout the development of this work. Appreciation is also extended to all individuals who contributed, directly or indirectly, to the completion of this project.

Leuven, 2026
Elena

References

1. Belgian cancer registry. Baarmoederhalskanker: aantal nieuwe diagnoses en voor leeftijd gestandaardiseerde incidentiecijfers per regio, 2023. 2023.

2. Alles Over Kanker. Wat is baarmoederhalskanker? [Internet]. [cited 2024 May 1]. Available from: https://www.allesoverkanker.be/baarmoederhalskanker/wat-is-baarmoederhalskanker

3. Belgian Cancer Registry, Centrum voor Kankeropsporing. Evaluatie gezondheidsdoelstelling bevolkingsonderzoeken naar kanker. 2023.

4. Simoens C, Goffin F, Simon P, Barlow P, Antoine J, Foidart JM, et al. Adverse obstetrical outcomes after treatment of precancerous cervical lesions: A Belgian multicentre study. BJOG An Int J Obstet Gynaecol. 2012 Sep;119(10):1247–55.

5. van Velthoven K, Poppe W, Verschuere H, Arbyn M. Pregnancy outcome after cervical conisation: A 2nd retrospective cohort study in the Leuven University Hospital. Eur J Obstet Gynecol Reprod Biol [Internet]. 2017;216:224–31. Available from: http://dx.doi.org/10.1016/j.ejogrb.2017.06.043

6. Kim KH, Lee KA. Women After Hysterectomy. Symptom Exp Women After Hysterect. 2001;30(5).

7. Naert E, Van Hulle H, De Jaeghere EA, Orije MRP, Roels S, Salihi R, et al. Sexual health in Belgian cervical cancer survivors: an exploratory qualitative study. Qual Life Res [Internet]. 2024;33(5):1401–14. Available from: https://doi.org/10.1007/s11136-024-03603-5

8. Vilos GA. The history of the Papanicolaou smear and the Odyssey of George and andromache papanicolaou. Obstet Gynecol. 1998;91(3):479–83.

9. Smeets F, Verhoeven V, Baay M, Weyers S, Colpaert C, Govaerts F. Aanbeveling voor goede medische praktijkvoering: Cervixkankerscreening. Huisarts Nu. 2011;40(april 2011):S64–88.

10. Arbyn M, Haelens A, Desomer A, Verdoodt F, Thiry N, Francart J, et al. Welke screening voor baarmoederhalskanker? Heal Technol Assess (HTA) Brussel Fed Kenniscentrum voor Gezondheidszorg (KCE). 2015;(KCE Report 238A).

11. Chesson HW, Dunne EF, Hariri S, Markowitz LE. The estimated lifetime probability of acquiring human papillomavirus in the United States. Sex Transm Dis. 2014 Nov 12;41(11):660–4.

12. Nelson CW, Mirabello L. Human papillomavirus genomics: Understanding carcinogenicity. Tumour Virus Res [Internet]. 2023;15(November 2022):200258. Available from: https://doi.org/10.1016/j.tvr.2023.200258

13. Nieminen P, Vuorma S, Viikki M, Hakama M, Anttila A. Comparison of HPV test versus conventional and automation-assisted Pap screening as potential screening tools for preventing cervical cancer. BJOG An Int J Obstet Gynaecol. 2004;111(8):842–8.

14. Domus medica. Themadossier cervixkankerscreening [Internet]. [cited 2024 Jun 11]. Available from: https://www.domusmedica.be/richtlijnen/themadossiers/themadossier-baarmoederhalskankerscreening

15. Bevolkingsonderzoek. Hoeveel kost het om een uitstrijkje te laten nemen? [Internet]. [cited

2025 Dec 13]. Available from: https://baarmoederhalskanker.bevolkingsonderzoek.be/nl/bhk/hoeveel-kost-het-om-een-uitstrijkje-te-laten-nemen

16. Centrum voor Kankeropsporing (CvKO) BCR (BCR) & D, Zorg. Infosheet belangrijkste indicatoren Bevolkingsonderzoek Borstkanker en Baarmoederhalskanker - screeningsjaar 2023. 2024;

17. Brevik TB, Laake P, Bjørkly S. Effect of culturally tailored education on attendance at mammography and the Papanicolaou test. Health Serv Res. 2020 Jun 1;55(3):457–68.

18. Woo JST, Brotto LA, Gorzalka BB. The Role of Sexuality in Cervical Cancer Screening Among Chinese Women. Heal Psychol. 2009 Sep;28(5):598–604.

19. Baharum NN, Ariffin F, Isa MR, Tin ST. Health literacy, knowledge on cervical cancer and pap smear and its influence on pre-marital malay muslim women attitude towards pap smear. Asian Pacific J Cancer Prev. 2020 Jul 1;21(7):2021–8.

20. Vahabi M, Lofters A. Muslim immigrant women's views on cervical cancer screening and HPV self-sampling in Ontario, Canada. BMC Public Health. 2016;16(1).

21. Barrenechea-Pulache A, Avila-Jove E, Hernández-Vásquez A, Runzer-Colmenares FM. Socio-demographic inequalities in the uptake of Papanicolaou tests in Peru: analysis of the 2015-2017 Demographic and Family Health Survey. Epidemiol Health. 2021;42:1–9.

22. Agénor M, Krieger N, Austin SB, Haneuse S, Gottlieb BR. Sexual Orientation DisparitiesinPapanicolaou Test Use Among US Women: The Role of Sexual and Reproductive Health Services. Am J Public Health [Internet]. 2014;104(2):68–73. Available from: http://www.ajph.org

23. De Maesschalck AS, Verhoeven V, Benoy I, Bogers JP, Kegels E. De HPV-zelftest bij niet-gescreende vrouwen: Wat is de impact op de participatiegraad? Huisarts Nu. 2018;4:160–3.

24. Chang CC, Tseng CJ, Liu W wei, Jain S, Horng SG, Soong YK, et al. Clinical evaluation of a new model of self-obtained method for the assessment of genital human papilloma virus infection in an underserved population. Chang Gung Med J. 2002;25(10):664–71.

25. Bhatla N, Dar L, Patro AR, Kumar P, Kriplani A, Gulati A, Iyer VK, Mathur SR, Sreenivas V, Shah KV GP. Can human papillomavirus DNA testing of self-collected vaginal samples compare with physician-collected cervical samples and cytology for cervical cancer screening in devoloping countries? Cancer Epidemiol. 2009;33(6):446–50.

26. Szarewski A, Cadman L, Mallett S, Austin J, Londesborough P, Waller J, et al. Human papillomavirus testing by self-sampling: Assessment of accuracy in an unsupervised clinical setting. J Med Screen. 2007;14(1):34–42.

27. Mangold BR. Self-Collected Samples in Cervical Cancer Screening: Results of HPV and Pap Self-Collected Samples Compared to Physician-Obtained Specimens. Acta Cytol. 2019;63(5):379–84.

28. Haguenoer K, Sengchanh S, Gaudy-Graffin C, Boyard J, Fontenay R, Marret H, et al. Vaginal self-sampling is a cost-effective way to increase participation in a cervical cancer screening programme: A randomised trial. Br J Cancer. 2014;111(11):2187–96.

29. Broberg G, Gyrd-Hansen D, Miao Jonasson J, Ryd ML, Holtenman M, Milsom I, et al. Increasing participation in cervical cancer screening: Offering a HPV self-test to long-term non-attendees as part of RACOMIP, a Swedish randomized controlled trial. Int J Cancer. 2014;134(9):2223–30.

30. Enerly E, Bonde J, Schee K, Pedersen H, Lönnberg S, Nygård M. Self-sampling for human papillomavirus testing among non-attenders increases attendance to the norwegian cervical cancer screening programme. PLoS One. 2016;11(4):1–14.

31. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77–101.

32. Statistiek Vlaanderen. Bevolking naar onderwijsniveau (scholingsgraad) [Internet]. 2025. Available from: https://www.vlaanderen.be/statistiek-vlaanderen/onderwijs-en-vorming/bevolking-naar-onderwijsniveau-scholingsgraad