

# Cervical cancer knowledge and screening uptake by marginalized population of women in inner-city Durban, South Africa: Insights into the need for increased health literacy

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## Abstract

**Background:** Cervical cancer in South Africa accounts for 15.85% of all female cancers and 30.29% of African female cancers, resulting in over 5000 deaths annually. South Africa's proposed move towards universal healthcare places emphasis on health promotion through education and screening, but there is little data on the baseline levels of knowledge and screening uptake regarding cervical cancer. This study explored the levels of knowledge and screening rates of cervical cancer among vulnerable women living in the inner-city of Durban, South Africa.

**Methods:** A mixed-method study was conducted within the context of a Women's Health outreach initiative. Data were collected from women attending the outreach ( $n = 109$ ), many of whom were from marginalized communities. A pre-intervention survey was used to collect the data. This was followed by cervical cancer education sessions and the opportunity for a free Pap smear.

**Results:** Knowledge of cervical cancer was low ( $<25\%$ ) and only a third of the women had previously been screened. After the educational sessions, 64% of women ( $n = 70$ ) took advantage of the opportunity for Pap smears, with many expressing the need for wider cervical cancer education, screening centres and support groups. Only 20% of the Pap smears were normal ( $n = 14$ ). Half of the women tested positive for infections ( $n = 36$ ; 51.4%), and a small proportion ( $n = 8$ ; 11.4%) tested positive for human papilloma virus. Abnormal cervical intra-epithelial neoplasia (CIN I and CIN 2) were also detected in this population ( $n = 12$ ; 17.1%).

**Conclusion:** Cervical cancer knowledge and screening among vulnerable women in Durban, South Africa, is inadequate, especially considering the high levels of abnormality found in the Pap smears. Education drives, accompanied with the provision of free testing, are required. Community health outreach initiatives in collaboration with non-government organizations set in accessible locations could be a possible course of action.

## Keywords

cervical cancer, health promotion, knowledge, screening, South Africa

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## Introduction

Cervical cancer is one of the leading causes of cancer death in women all over the world, especially in low- to middle-income countries.<sup>1</sup> This is largely due to the numerous challenges in the provision of screening opportunities and treatment options.<sup>1,2</sup> The Global Cancer

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Observatory estimated the 2020 global incidence of cervical cancer to be 604,127 and accounting for 341,831 deaths.<sup>3</sup> About 90% of these deaths occur in low- and middle-income countries.<sup>4,5</sup> Cervical cancer often affects the most vulnerable women: those in low socioeconomic groups who have inadequate health literacy, poor access to reproductive health care and screening and who face many socioeconomic challenges.<sup>1,5</sup> A sub-Saharan community-based study has highlighted that healthcare system barriers, such as long waiting periods, past adverse experiences and language barriers, prevent these women from seeking the appropriate care for noticeable symptoms.<sup>6</sup> Furthermore, those who are HIV positive are at an even higher risk of contracting cervical cancer.<sup>7</sup>

Within South Africa, cervical cancer causes more than 6000 deaths annually<sup>8</sup> and accounts for 15.85% of all female cancers within the country.<sup>9</sup> This prevalence figure doubles to 30.29% when separating the statistics for Black African women.<sup>9</sup> Notably, cervical cancer also remains the most common cause of cancer death among Black African women in the province of KwaZulu-Natal, where the overburdened public health sector has been in an oncology crisis.<sup>10</sup> In addition, HIV-positive women who face fewer socioeconomic challenges have more healthcare facilities and are more likely to be diagnosed with invasive cervical cancer, suggesting under diagnosis and lack of treatment in other groups.<sup>11</sup> With 12.6% of adolescents giving birth in KwaZulu-Natal in 2016, the associated risk factors of younger age, early sexual debut and early age of first pregnancy are of particular concern.<sup>12,13</sup>

Several South African studies have identified low knowledge levels for cervical cancer and human papilloma virus (HPV),<sup>14–20</sup> where a large proportion of women revealed that they had never tested for cervical cancer.<sup>14,15</sup> Factors that influenced testing included place of residence, having health insurance, being older in age, non-Black ethnicity, employment and pre-existing chronic medical conditions.<sup>21,22</sup> Support from a partner also played an important role in women being tested.<sup>15</sup> Based on the SA World Health survey, women who had previously tested for cervical cancer were more likely to be married, obtained a tertiary degree, had higher household socioeconomic status and easy access to a testing site.<sup>23</sup>

It is interesting to note that the greater the number of healthcare providers, the greater the likelihood of having a screening test done.<sup>23</sup> Notably, women who did not perceive themselves at risk would not utilize the screening services.<sup>15</sup> Screening programme initiatives can forfeit any possible gains if the necessary health care system infrastructures are not in place,<sup>24</sup> as awareness and screening initiatives go hand-in-hand with the availability of healthcare. In an already overburdened health care system, this is next to impossible.

However, much can be done to prevent cervical cancer. Its strong link to the presence of the HPV, as well as a long

precursor stage in its pathogenesis, makes it possible for early detection and treatment to prevent progression to invasive disease.<sup>9</sup> Over several decades, high-income countries have seen a steady decrease in cervical cancer incidence and mortality rates, a trend driven by early screening and effective treatment technologies coupled with public education campaigns.<sup>25,26</sup> In low- and middle-income countries, cervical cancer incidence is almost twice as high as in high-income countries, and death rates are three times as high.<sup>27</sup>

The World Health Organization (WHO) outlines strategies for cervical cancer prevention and control.<sup>1</sup> The guide recommends preventive factors such as screening, while emphasizing the essential role played by health education in any cervical cancer prevention programme, noting lack of information as a key factor impeding success.<sup>1</sup> The guide also highlights the need for collaboration across organizations and involvement of non-government organizations (NGOs). This could potentially assist many countries in closing the gap between the need for cancer prevention services and the availability thereof.<sup>1</sup> It speaks to the need for culturally appropriate outreach initiatives that take into consideration language barriers, and the need for service sites that are accessible to the marginalized, so as not to exclude those who lack transportation.<sup>1</sup> Also of consideration is the need to address gender discrimination and other social inequalities that are associated with cervical cancer vulnerability in women.<sup>27</sup>

Against this backdrop, this study sought to explore the following in a population of inner-city women attending a local Women's Health outreach initiative:

- Cervical cancer knowledge.
- The testing rates for cervical cancer before and after the Women's Health outreach initiative.

## Methods

The findings presented in this publication are part of a larger mixed-method study, which explored various aspects of women's health. Data were gathered from women participating in a Women's Health outreach initiative at the Denis Hurley Centre in Durban, South Africa. This NGO community centre is easily accessible to those living within the city, including many marginalized populations such as those who are homeless and refugees, to whom it provides a range of services.<sup>28</sup>

This was a mixed-method study, where both quantitative and qualitative data were obtained from women participating in the study. This method allowed for data triangulation, with the qualitative data supporting the quantitative data. Using a population size of approximately 150 women who attend the Dennis Hurley centre for their needs, a 95% confidence interval and a 5% margin of error, a minimum sample size of 109 was calculated, using the

Raosoft sample size calculator. Purposive sampling was utilized to target women from marginalized communities. A total of 120 questionnaires were handed out, and 109 participants completed the questionnaire resulting in a response rate of 90.8%. Inclusion criteria for the study were as follows: (1) homeless or refugee women attending the Denis Hurley Centre, Durban; (2) women above the age of 18 and (3) fluency in either English or isiZulu. Any citizen with formal residence in the city or related to the researchers and those who did not consent to the study were excluded.

The Durban University of Technology Institutional Research Ethics Committee provided ethical clearance (IREC 97/17) prior to commencing the study. The Women's Health outreach initiative, which was held on 12–13 September 2018, was advertised by the centre. An initial verbal explanation of the study was provided to potential participants by members of the research team. Those willing to participate were subsequently provided with written information about the study and were required to sign an informed consent form, prior to answering the research questionnaire. Participation was completely voluntary, and women who did not wish to participate were not penalized in any way and were welcome to utilize all other services provided by the outreach initiative.

Data were gathered using a previously validated questionnaire.<sup>29,30</sup> The questionnaire was available in both English and isiZulu. Although this was a self-administered questionnaire, assistance was provided to most women due to literacy constraints. In these instances, the researcher read out the questions, explained the meaning, if required, and scribed the answers. An isiZulu research assistant helped those participants who were only fluent in isiZulu. All research assistants were provided with training on administration of the questionnaire, prior to the study commencing. The questionnaire comprised 183 questions, of which 32 were used for the purposes of this report. Four of these were open-ended questions, which gathered qualitative data. The full questionnaire took approximately 30–45 minutes to complete, and saturation was reached for the qualitative aspect of the study.

After completing the questionnaire, participants were provided with an educational session on reproductive health, utilizing instructional models and pamphlets. This included a specific emphasis on cervical anatomy, cervical cancer risk factors, symptoms and screening. The educational session was provided in English and isiZulu, as needed by different participants. Following the instructional sessions, women were offered the opportunity to have a free on-site Pap smear, conducted by a team of staff from the Cancer Association of South Africa (CANSA). A gift bag with toiletries to the value of R50 (50 South African Rands, which is equivalent to approximately 4 US\$) was provided to all research participants to compensate them for their time.

## Statistical analysis

Quantitative data were analysed on SPSS (Version 24). Frequencies were calculated, and chi-square tests were used to correlate data. Qualitative data were analysed by thematic analysis.<sup>31</sup> Open-ended responses were manually coded to identify themes. Recurring themes were identified and coded separately by two members of the research team. The coding was subsequently compared for consensus. Some of these quotations have been reported to substantiate the data derived from the quantitative analysis. Sentences were corrected where necessary.

## Results

### Participant demographics

One hundred and nine participants completed the questionnaire, and their demographic details are indicated in Table 1. All the participants were female with a large proportion identifying their ethnicity as Black African (85.3%;  $n=93$ ). Over half the participants had only secondary/high school-level education (51.4%;  $n=56$ ) and over a third (40.4%;  $n=44$ ) were unemployed.

### Sexual history

Two-thirds of the participants (83.5%;  $n=66$ ) were in a sexual relationship at the time of the study, with 12 (14.3%) indicating multiple current sexual partners. The number of lifetime sexual partners varied and is indicated in Table 2. Half of the participants (51.4%;  $n=56$ ) first had sexual intercourse between the ages of 16 and 21 years, while 8 (7.3%) were sexually active before the age of 15 years. Thirteen participants (14%) had previously been treated for sexually transmitted infections. Table 2 also indicates that over a quarter (26.7%;  $n=24$ ) had previously been assaulted by a sexual partner and the resultant fear of further assault led to the inability to negotiate condom use by some of them (14.4%;  $n=13$ ). Almost a fifth (18.9%;  $n=17$ ) of the study population had been forced to have sexual intercourse and some (10%;  $n=9$ ) also engaged in transactional sex.

### Cervical cancer knowledge

Table 3 presents the participants' knowledge of cervical cancer. Correct responses are expressed as percentages of the survey population, with score averages calculated for each of the five knowledge categories (risk factors, symptoms, prevention, screening and treatment). A third of the participants (33%;  $n=36$ ) had never heard of cervical cancer and answered 'no' to further questions in that section of the questionnaire. Among those who had heard of cervical cancer, knowledge of risk factors was low and none of the participants correctly identified all risk factors. There was

**Table 1.** Sociodemographic profile of participants.

Demographic variables	% (n)
<b>Age</b>	
18–24	22 (24)
25–30	24.8 (27)
31–40	32.1 (35)
41–50	13 (12)
Over 50	7.3 (8)
<b>Race</b>	
Black	85.3 (93)
Coloured	4.6 (5)
Indian	4.6 (5)
White	3.7 (4)
<b>Employment</b>	
Employed	22 (24)
Street hawker/vendor	15.6 (17)
Unemployed	40.4 (44)
Pensioner	3.7 (4)
Sex worker	0.9 (1)
<b>Living area</b>	
Township on outskirts of the city	45.9 (50)
Flat in the city	28.4 (31)
Homeless	16.5 (18)
Suburb	1.8 (2)
Retirement home	0.9 (1)
Squatter camp	0.9 (1)
<b>Nationality</b>	
South African	86.2 (94)
Foreign citizen	11 (12)

NB: All percentages do not add up to 100 as some questions were not answered by all participants.

no correlation between risk factor knowledge and level of education ( $p > 0.05$ ).

Less than a third of participants could identify the main symptoms of cervical cancer. The most identified symptom was vaginal bleeding (28.4%;  $n=31$ ), followed by vaginal discharge (23%;  $n=25$ ) and pelvic pain (20.2%;  $n=22$ ). Only six (5.5%) correctly identified all three major symptoms. There was a significant correlation between higher education levels and the identification of vaginal bleeding as a symptom for cervical cancer ( $p < 0.001$ ). However, there was no correlation between identification of the other symptoms and education ( $p > 0.05$ ). Only a quarter of the women (24.8%;  $n=27$ ) identified the use of condoms as protection against cervical cancer and none identified both condom use and the HPV vaccine as protective mechanisms. Almost a quarter (25.4%;  $n=18$ ) of the participants who had heard of cervical cancer did not believe that they could get it.

Only 56.9% ( $n=62$ ) of the women had heard of a Pap smear, and only 31.2% ( $n=34$ ) identified regular testing for cervical cancer as a preventive measure. Thirty percent of all participants ( $n=33$ ) had been previously tested, nine

**Table 2.** Sexual history.

	% (n)
<b>Number of lifetime sexual partners</b>	
1	23.9 (26)
2	16.5 (18)
3	13.8 (15)
4	5.5 (6)
5 or more	19.3 (21)
<b>Age of sexual debut (years)</b>	
≤15	7.3 (8)
16–21	51.4 (56)
22–27	16.5 (18)
28 and older	1.8 (2)
Could not remember	0.9 (1)
Not yet sexually active	5.5 (6)
<b>Screening</b>	
Tested for HIV	85.3 (93)
Tested for Cervical cancer	30.3 (33)
<b>HIV status</b>	
HIV negative	63.3 (69)
HIV positive	11 (12)
Did not wish to disclose status	8.3 (9)
<b>Gender inequality factors</b>	
Unable to negotiate condom use due to fear of been assaulted by sexual partner	14.4 (13)
Has been forced to have intercourse	18.9 (17)
Has been assaulted by sexual partner	26.7 (24)
Has participated in transactional sex	10 (9)

HIV: human immunodeficiency virus.

NB: All percentages do not add up to 100 as some questions were not answered by all participants.

of whom (8.3 %) were tested in the preceding 2 years. Those who did not have Pap smears, despite knowing about cervical cancer, cited the following reasons: a lack of time (6.4%;  $n=7$ ), fear that the exam would be painful (4.6%;  $n=5$ ), were never told to have a Pap smear (4.6%;  $n=5$ ), feared the results (5.5%;  $n=6$ ) and financial constraints (1.8%;  $n=2$ ). A fifth (19.3%;  $n=21$ ) of the participants knew someone who had been diagnosed with cervical cancer.

When asked to identify treatment options for cervical cancer, just over a quarter of the women correctly identified surgical removal of cancer cells (29.4%;  $n=32$ ) and hysterectomy (27.5%;  $n=30$ ). However, only 6.4% ( $n=7$ ) identified both treatment options correctly. Almost two-thirds (56.9%;  $n=62$ ) of the respondents indicated a desire for more education about cervical cancer.

### Cervical cancer stigma

Table 4 presents the responses to questions on stigma. The response rate to these questions was low, possibly because they were unaware of people with cervical cancer in the community. However, all who responded ( $n=70$ ) stated

**Table 3.** Cervical cancer knowledge.

	Correct responses % (n)	Average knowledge score per category
Identifying risk factors for cervical cancer		18.4
Sexual transmission	21.1 (23)	
HPV infection	20.2 (22)	
Multiple partners	17.4 (19)	
Not using condoms	14.7 (16)	
Identifying symptoms		23.9
Vaginal bleeding	28.4 (31)	
Vaginal discharge	23.0 (25)	
Pelvic pain	20.2 (22)	
Knowledge of prevention		19.3
Wearing a condom	24.8 (27)	
HPV vaccination	13.8 (15)	
Knowledge of screening		31.2
Pap smears	31.2 (34)	
Knowledge of treatment for cervical cancer		28.5
Surgical removal of cancerous cells	29.4 (32)	
Hysterectomy	27.5 (30)	

HPV: human papilloma virus.

**Table 4.** Cervical cancer stigma.

	Response % (n)
If a close friend had cervical cancer, how would your relationship change?	
I would support/help her	100 (70)
I would reject her	0 (0)
In your community, how is a woman with cervical cancer treated?	
Most people reject her	2.9 (2)
Most people are friendly, but they generally try to avoid her	11.8 (8)
The community mostly supports and helps her	57.4 (39)
I do not know	27.9 (19)
What is the quality of life of a woman with cervical cancer?	
Good	11.8 (8)
Average	26.5 (18)
Poor	25.0 (17)
I do not know	36.8 (25)
In comparison to HIV, the stigma towards cervical cancer is:	
The same	16.7 (11)
Less	18.2 (12)
More	21.2 (14)
There is no stigma towards cervical cancer	43.9 (29)

HIV: human immunodeficiency virus.

that they would help/support a friend who was diagnosed with cervical cancer. Nevertheless, as shown in Table 4, the response of the community was varied with more than a quarter responding that they did not know how the community would treat someone with cervical cancer. Similarly, most of the respondents were unaware of the quality of life of someone with cervical cancer. However, when comparing stigma of cervical cancer to that of HIV, almost half the respondents felt that there was no stigma towards cervical cancer.

### *Cervical cancer screening figures and Pap smear results*

In contrast to the 30% who had been screened for cervical cancer prior to the Women’s Health initiative, 64% ( $n=70$ ) took the opportunity of the free Pap smear provided after the educational intervention. Only 14 (20%) Pap smears were normal. Half of the women (51.4 %,  $n=36$ ) tested positive for infections including bacterial vaginosis and viral, fungal, protozoan or candida infections. A small



proportion (11.4%;  $n=8$ ) tested positive for HPV and abnormal cervical intra-epithelial neoplasia (CIN1 and CIN2) were also detected in this population (17.1%;  $n=12$ ).

### *Qualitative results*

When the factors related to cervical cancer knowledge and screening were further explored through open-ended questions, four qualitative themes emerged. These aligned closely with those identified by Greibe Andersen et al.<sup>32</sup> and included health and fertility concerns, support structures, the lack of public awareness and factors related to health care provision (access to screening sites and role of health care professionals).

#### *Health and fertility concerns*

As noted in the quantitative data, the study population is vulnerable, and many have faced sexual violence. Women may be monogamous but had no control over their partner's sexual activities; 'I am sexual(ly) active, I never know my partner's health' [P92]. Women risk rejection by their partners if they are unable to produce children. When asked about what cervical cancer suggests, the most common fears were of death and infertility. There was a concern about loss of fertility and childbearing, should they test positive. This concern prevented them from testing; 'Not giving birth or being infertile' [P109]. Related to this was an expression of fear that a hysterectomy would be required, 'I am afraid to check for cervical cancer because of removal of my womb' [P33].

#### *Support structures*

The overwhelming expression was one of support, empathy and sympathy for those diagnosed with cervical cancer; 'I actually feel pain and I feel sorry for them' [P119]; 'I feel sorry for them and I want to help them' [P102]; 'I feel sorry but gave her hope and all the help I could' [P30]. This was echoed in a call not just for education, but for support groups where women could help one another; 'We need more education, more workshops, more support' [P23]; 'Support groups and educational programs about cervical cancer would benefit the women of Durban city' [P55]. There were calls for community-driven campaigns that specifically target women; 'I think through women organisations in communities. There should be events about health and diseases that affect women' [P57].

#### *Awareness of cervical cancer and screening*

A lack of awareness of both the disease and screening was commonly cited as a barrier to testing; 'Because I don't even know how you get cancer' [P80]; hence, they would

not know how to prevent it; 'I don't know how you can prevent it' [P20]. Personal experience with the disease also encouraged screening. One participant stated; 'I felt sorry for my granny, from then on I felt I have to take care of myself and do Pap smears all the time' [P86].

#### *Health care provision*

Trust in health care providers is a key factor in public health initiatives. Many participants expressed confidence in doctors and the treatment of cervical cancers. 'I had to communicate with her and advise her to take her medication as per doctor's order and bring hope to that person. She is not alone' [P95]; 'I sympathise with them a lot, but they shouldn't lose hope and they must follow the doctor's instructions/orders' [P20]; 'they should ask for help. Take their treatment if they need one. Cervical cancer is curable' [P89].

Access to health care providers was seen as a barrier to testing where participants felt that clinics were too busy; 'The number of mobile clinics should be increased because the clinic is always overloaded and busy' [P20]. Women also expressed the desire for screening centres in outlying areas, allowing access to all women including those who did not have the means to come into the city for screening; 'I wish some mobile clinics can travel to community places to help with screening people so that they can find out if they have this illness or not' [P68]. After participation in the Women's Health outreach initiative, there was a sense of autonomy with participants wanting to share their knowledge with calls for 'more awareness programmes to educate women' [P97].

### **Discussion**

The overall knowledge of cervical cancer among the study population was low. Testing for cervical cancer was low prior to the health outreach but improved after the intervention. A third of the study population had never heard of cervical cancer, and a quarter of those who had heard about it did not believe that they could get the disease.

Only a third of the sample population had been screened for cervical cancer prior to the health outreach. This was lower than the 43% reported in another high-risk Durban community where the participants reportedly had difficulty accessing cervical cancer care and were afraid of the screening process.<sup>30</sup> Pap smear uptake was found to be significantly higher in those who have higher knowledge of cervical cancer, with lack of knowledge forming the biggest barrier to screening.<sup>33</sup> However, a scoping review of screening uptake initiatives in sub-Saharan Africa by Lott et al.<sup>34</sup> reported that strategies aimed at increasing screening uptake are more likely to succeed when they simultaneously address multiple constraining factors (such as addressing education while also considering environmental

constraints and language barriers).<sup>34</sup> When seeking to increase women's knowledge of cervical cancer and screening, it is also vitally important that they are empowered to use this knowledge by ensuring ease of access to testing. Studies have shown knowledge levels improved after an educational session<sup>16,35</sup> which ultimately has a positive effect on increased screening.<sup>36</sup> In this study, uptake of Pap smears, after the education intervention, increased from one-third to two-thirds of the study population. Although we were unable to reach 100% of the study population, the screening did increase substantially and could perhaps be improved with further interventions.

It is possible that the women who chose not to utilize the free, voluntary screening service were anxious about the test itself or of the result. One participant had alluded to the fear of requiring a hysterectomy, should she test positive. A study emanating from another high-risk Durban community reported that women were afraid of the screening process.<sup>29</sup> Despite the intervention, many may still have felt that they did not need to be screened. This is corroborated by Francis et al.<sup>14</sup> who stated that South African women feared the procedure and did not think that they required the examination. Moreover, many women from African cultural backgrounds often consult traditional healers for health-related symptoms. According to Nelson et al.<sup>37</sup> several people consult traditional healers for a myriad of healthcare conditions including those related to sexual health. As a result, early detection can be missed, and when combined with psychosocial factors can ultimately impact screening initiatives adversely. Furthermore, a study in France has shown that those who never screened for cervical cancer were more likely to be unemployed,<sup>38</sup> and the high rate of unemployment in our study population is also noted. We were, however, unable to correlate this with the screening uptake, since due to anonymity, no personal or demographic details were provided to us by CANSA.

Considering that only 20% of Pap smear results were normal in this study population highlights the importance of screening so that early detection can be followed by treatment of this potentially curable condition. Similar findings of abnormalities were reported previously.<sup>39</sup>

In addition to low screening levels, knowledge of cervical cancer in our study population was also low, with a third of the study population never having heard of the disease and a quarter of those who had heard about it believing that they could not get the disease. The participants showed little knowledge of each of the categories assessed: cervical cancer symptoms, risk factors, prevention and treatment. The level of knowledge did not correlate to level of formal education. These insights highlight the urgent need for cervical cancer health education across all communities but particularly in vulnerable communities that are considered high risk for the disease. This lack of knowledge about cervical cancer has also been reported in

other studies within the province of KwaZulu-Natal (KZN) as well as other provinces in South Africa and elsewhere in Africa.<sup>16,18,19,29,40-43</sup> Women have previously expressed the need for female targeted education, screening centres and support groups.<sup>29</sup>

Participants in this study also stressed the importance of the community both in terms of education and support. Studies have demonstrated the benefit of peer support systems for women with gynaecological cancer in combatting feelings of isolation, improved coping skills and management of fear and anxiety.<sup>44</sup> Moreover, women who are screened on a regular basis, and those who are cervical cancer survivors should be included in these educational initiatives. These women would be able to alleviate the concerns regarding testing and share firsthand experiences which would be beneficial towards upscaling screening initiatives. Also, young women, from within the communities, should be included as they play a pivotal role in preventive healthcare,<sup>30</sup> and could introduce awareness and other health care initiatives to others at an early age, which would allow for appropriate well-informed health decisions later in life.

Community involvement of this nature could be pivotal in the prevention of stigma associated with screening or diagnosis, which can act as a barrier to health-seeking behaviour. Whilst data indicated strong personal acceptance of women with cervical cancer by the participants, these participants remained uncertain of whether the wider community would demonstrate the same acceptance. The qualitative responses indicated that the main stigma associated with the disease was potential sterility. We did not measure stigma after the education intervention, hence we cannot categorically state that the education intervention reduced stigma; however, previous studies have shown that information-based initiatives reduce negative attitudes in the community, as these are usually based on incorrect beliefs.<sup>45</sup>

The participants also displayed a high level of trust in health care providers and treatment. This is corroborated by Oberlin et al.<sup>46</sup> who also reported that women would prefer health care providers to conduct same-day testing rather than return on another day.

An area of concern raised by the participants was lack of access to testing centres. One avenue being explored is utilization of existing community clinics. There are currently 589 clinics in KZN, all of which provide HIV care and could potentially incorporate cervical cancer screening. Of consideration however, is the stigma associated with these common clinic/testing services that was apparent in a previous study, where HIV-negative women expressed safety and hygiene concerns, should they attend an HIV clinic for cervical cancer screening.<sup>29</sup> The current study revealed a different attitude. Not surprisingly, almost all the HIV-positive participants were willing to have a Pap smear at any of these clinics. Moreover, it is important to note that 63.3% of those who had stated that they were

HIV negative were also willing to attend the HIV clinic for the cervical cancer test, possibly due to reduced HIV stigma. The willingness to attend a clinic that provides comprehensive services is encouraging and may be a cost-effective way to increase the access to screening across the province and a step towards universal health care while easing the backlog at the oncology centres.

The 2017 Cervical Cancer policy outlines the plans for government programmes that will ensure the necessary infrastructure, technology and information resources to increase awareness, prevention and screening for cervical cancer.<sup>47</sup> These plans include training of staff for effective screening, diagnosis and management processes and improved treatment infrastructure. Included in the policy is the need to mobilize communities in education initiatives to utilize screening services.<sup>47</sup> In their guide to cervical cancer control, the WHO speaks of the need for countries to give careful consideration to sustainability and scalability when finding feasible options for the prevention of cervical cancer.<sup>1</sup> With the overburdened public health care system in South Africa, screening will need to be incorporated into existing structures in partnership with NGOs.

The Women's Health outreach initiative that formed the basis for this study is an exemplar of such potential. By offering the Women's Health outreach at a community centre close to the vulnerable groups of the inner city, the challenge of access to educational and screening opportunities was overcome. In addition, collaboration with Durban University of Technology, Faculty of Health Sciences, made it possible for appropriate and accurate health instruction to be conducted in the home language of participants. Such collaborations, utilizing resources of both the educational institution and the NGO, could potentially improve success in educational and screening endeavours.

## Conclusion

We conclude that levels of cervical cancer knowledge and testing rates among vulnerable women in Durban, South Africa, are very low. The health initiative that was provided, improved knowledge as well as access to screening, with subsequent increased screening uptake. While there is a great need for health education in order to increase knowledge about cervical cancer and its screening, this needs to be supported by providing women with the opportunity of free screening. Gender-specific community outreach initiatives held at centres which are easily accessible for the community, together with informative support in the home language of the participants, can assist to increase screening uptake, especially for the more marginalized and vulnerable populations in the country.

## Limitations of the study

The sample for this study was drawn from women of low socioeconomic standing who attended a centre that provides services for marginalized populations in Durban. However, the sample population, comprised women over the age of 18 years, in their years of sexual and reproductive activity. It is an age group where cervical cancer is of increasing concern. As such, the sample is representative and appropriate for the purposes of exploring cervical cancer.

Ethics approval did not include revealing individual Pap smear results to researchers. For this reason, Pap smear results had to be reported for the group as a whole and could not be correlated to lifestyle factors, social factors or knowledge levels.

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## Author contributions

J.F.D., C.M.K. and F.H. were involved in conceptualizing and designing the research project. Data were collected by J.F.D., J.B. and F.H. All authors analysed the data and were involved in drafting and writing of the article.


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## Supplemental material

Supplemental material for this article is available online.

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