Identification and uptake of cervical cancer screening during active surveillance in HIV-positive women attending a primary health care facility in Tshwane District, South Africa

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Cervical cancer constitutes 20 - 25% of cancers in women in Sub-Saharan Africa. It is a preventable disease, subject to adequate screening, management and follow up. Nevertheless, more than half a million women worldwide develop invasive cervical cancer annually, with middle-and low-income countries achieving only 19% of successful screening coverage compared with high-income countries (63%). The age-standardised incidence rate for cervical cancer in South Africa is 24.71 per 100 000 women.[1]

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Two decades after the launch of the national cervical cancer screening programme in 2001 by the South African (SA) Department of Health, screening coverage for women older than 30 years remains low (20%).[1] Subsequently, national guidelines for Papanicolaou smear (Pap smear) for cervical cancer screening published in 2017 detailed the screening protocol for low and high-risk populations, such as those with HIV.[2] Screening efforts should be more focused and frequently done in these high-risk groups, such as HIV-positive women, due to the higher risk of pathological smears in this population.[3,4]

The uptake of screening depends on multiple factors, such as low income, lower levels of education, lack of medical insurance and limited access to primary healthcare providers.[5]

Since the start of the COVID-19 pandemic, hesitancy to access services for 'routine care' may have increased due to fear of contracting COVID-19 in facilities as well as prioritisation of health services to focus on COVID-19 and reduction of other services. As such, women who required pap smears, as a part of the cervical screening programme, might have not received the necessary care. A meta-analysis conducted on cancer screening during COVID-19 found an overall decrease in screening uptake with all forms of cancer screening programmes.[6,7] This might be attributed to factors associated with the health systems, such as the reallocation of staff to COVID-19 duties, or challenges faced by patients, including restricted access and financial constraints. Estimates suggest that a 6-month delay could result in an increase of five cases per one million women, while a 24-month delay would lead to an increase of 38 cases per million women.[7]

Given the already low rates of cervical screening uptake among the SA population, compounded by the effects of COVID-19, it is important to re-establish the screening programme with patients previously known in the health system as well as improve the follow-up rates. As such, this study aimed to identify HIV-positive women attending a primary healthcare (PHC) facility in the Tshwane District, in SA, who require routine cervical cancer screening and to assess the uptake of these services through an active surveillance process in that clinic.

Methodology

This was a cross-sectional study based at a primary healthcare facility in the Tshwane District, SA, for 6 months (January 2022 - June 2022).

The records of chronic patients (n=602) attending that clinic were captured electronically, as a part of testing the feasibility of digitalisation of patient records. The inclusion criteria comprised HIV-positive women who had never undergone a Pap smear or had previously received abnormal results on a Pap smear (high-grade squamous intraepithelial lesion (HSIL), low-grade squamous intraepithelial lesion (LSIL), atypical squamous cells of undetermined significance (ASCUS) and Human Papilloma Virus (HPV)). We excluded patients who did not attend the clinic, were HIV-negative and those who refused a Pap smear. Ultimately, 256 patients met the inclusion criteria of the study. However, many of the telephone numbers on the electronic register were not accessible. Only 24 (0.9%) participants were successfully contacted and participated in this study (Fig. 1).

These patients were then contacted and booked at the clinic for Pap smears. This process spanned 3 months and involved several steps: booking appointments (often requiring multiple phone calls),

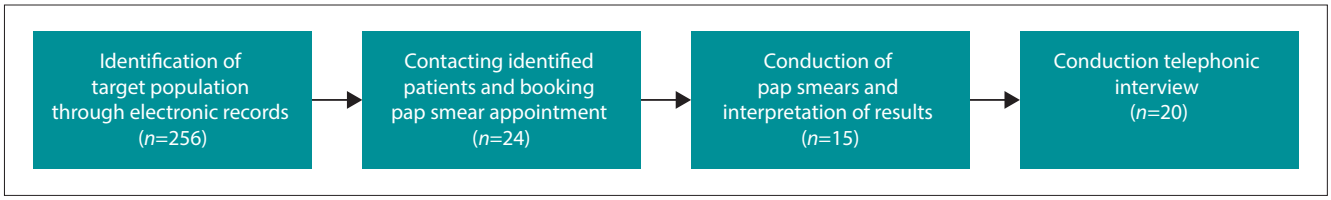

Fig. 2. Process flow of the recruitment of patients for the study

performing the procedure and obtaining results and subsequently administering a telephonic questionnaire.

All information was entered into the electronic system, which was intended for future administration use at that clinic. An additional cervical cancer screening card was attached to each patient's clinic card, which included information regarding their next follow-up dates, Pap smear dates, specimen reference numbers and results of each of their Pap smears. This was to ensure that different healthcare workers might have access to all their results in future, even if they were not previously involved.

Education about cervical cancer was provided by the clinical nurse performing the Pap smear, supplemented by a pamphlet containing information regarding cervical cancer. Prior to the study commencement, staff conducting the Pap smear were trained to standardise the methodology and minimise inter-operator variability. Data were captured using Microsoft Excel and analysed using NCSS statistical software. The study was approved by the University of Pretoria Research Committee. The patient's confidentiality was ensured at all times.

Results

The mean age of the patients (*n*=24) was 43 (SD, 10) years with a minimum and maximum of 28 and 70 years, respectively.

Pap smears in 2022: Among the included patients, 63% (*n*=15/24) presented to the clinic on the arranged date for their Pap smears. Two (13%) patients had specimens indicating atypical squamous cells of undetermined significance (ASCUS), one (7%) had a high-grade squamous intraepithelial lesion (HSIL) and 11 (79%) had no abnormalities detected (negative for intraepithelial lesion or malignancy, **NILM**) (Table 1).

Follow-up telephonic consultations: Among the 24 patients, 20 (83%) responded to the follow-up telephonic call, during which the questionnaire designed for this study was administered. Among them, 9 did not attend the Pap smear clinic on the date provided in 2022 owing to various reasons: preoccupation with work (*n*=2), no longer being a patient of the clinic (*n*=2) and deciding against undergoing the Pap smear despite initially agreeing to it (*n*=1).

Previous pap smears: Only eight patients confirmed having undergone a Pap smear between 2020 and 2022. Others mentioned various reasons for not having Pap smears during that period, such as missing appointments (*n*=6), COVID-19 (*n*=2) and illness (*n*=1).

Knowledge of pap smear: The questionnaire further assessed the participants' knowledge regarding Pap smear testing. Regarding the repeatability of Pap smears among HIV-positive women, 12 responded incorrectly (every 6 months), one responded (12 monthly), 9 responded (5 yearly), and five did not know how often one needs to repeat it. Only three of them responded correctly, citing that Pap smears should be repeated at a minimum of every 3 years from the time of diagnosis for HIV-positive women.

Barriers to conducting Pap smears at the clinic: Ten patients cited a lack of information and poor patient education as a cause. They found that the brochure offered by the clinic was limited in terms of availability and lacked language variance. Furthermore, long queues, lack of engagement of staff for health promotion and poor staff attitudes were also mentioned.

Improvement in communication: Appointment reminders (*n*=11), programmes for health promotion or prevention (*n*=5) and adherence counselling (*n*=2) were cited as possible effective tools for improving communication.

Discussion

Poor uptake of Pap smear among HIV-positive patients was found to be a major problem in this study (40%), which is comparable with other studies conducted in Durban (31%)[8] and rural KwaZulu-Natal (39%).[10]

Loss to follow-up was identified as another hindrance to the successful management of cervical screening. A study done in Limpopo Province, SA, reported a loss-to-follow-up rate of 60%, 18 months after initiating the programme.[9] This effect could be seen in this clinic, where among the 256 patients who were identified on record, only 24 patients were successfully contacted. Additionally, when patients were contacted telephonically a month later, only 20 of them responded highlighting challenges of poor retention.

COVID-19 was expected to have a detrimental uptake on Pap smears. However, in Western Cape Province, a study found a 7% decline in uptake compared to other sectors, such as prostate cancer screening (58%) or breast cancers (32%).[11] The relatively reduced impact of the COVID-19 pandemic on cervical screening was likely attributed to the continued availability of Pap smears in PHC facilities in the Western Cape Province throughout the pandemic. However, this mitigated impact may not be reflective of the entire nation and additional data from other provinces are necessary to assess the impact on the country. Only two participants mentioned COVID-19 as a reason for not having a Pap smear conducted during that period.

Knowledge about Pap smears could be another important determinant of uptake. Several SA studies looked at the knowledge of cervical cancer uptake,[1,4,8-10] focusing on age, geographical distribution, level of education, socioeconomic status and whether or not they were aware of what Pap smears were. Thirty percent of the current study participants had no knowledge of Pap smears, similar to findings by other studies that reported 33%[8] and 27%[10] in Durban and rural KwaZulu Natal, respectively. However, none of these studies assessed patients' knowledge regarding the frequency of Pap smears, an important consideration given that frequent testing has

Table 1. Past and current Pap smears results

	Previous smear with (worst results) (2020 - 2021)	Current smear (2022)
NILM	2	13
ASCUS	1	2
LSIL	0	0
HSIL	1	0
No results	11	-
Total	25	25

been shown to significantly improve the morbidity and mortality rates of cervical cancer patients.[12] In this study, only three patients provided a correct time frame of 3 years for HIV-positive women. Simply knowing what Pap smears are will not improve long-term screening rates if patients only undergo one Pap smear in their lifetime.

While this study identified reasons for missing Pap smears, such as work, long queues and simply forgetting appointments, other studies[1,4,8-10] identified other barriers including patient-related factors like fear of results, financial constraints and long and expensive commutes from rural settlements; health profession-related factors like being rejected by clinics, being younger than 30 years of age (despite their HIV-positive status), lack of health education provided to patients, bad experiences at their respective PHC facilities; community stigma and many more. Therefore, facilities must adapt to the community they serve to optimise the treatment provided and enhance uptake and adherence.

The study conducted in Durban[8] found that only 20% of the study population had normal Pap smears. Among abnormal Pap smear results, 51.4% of smears indicated infection and 11.4% tested positive for neoplasia. A study done among the HIV-positive population in Soweto identified that 18.2% of patients had smears that tested positive for neoplasia.[4] That study further concluded that HIV-positive patients had a 21.2% higher rate of abnormal smears. The present study found that 21.4% of patients had previous abnormal smears, with 14.4% showing abnormal results. Even though infection was not taken into account and the study population is small in this study, it is similar to the number of neoplastic smears found in other studies.

Limitations of the Study

The study population was limited in size, with only 24 respondents out of 256 patients. Such a small population unfortunately cannot provide an accurate representation of the clinic, let alone the entire Tshwane District. However, this study highlighted poor communication between the clinics and patients. The purpose of this study was to identify barriers to setting up an active surveillance process for cervical cancer screening in PHC clinics within the Tshwane District. This study contributed to improving cervical cancer screening programmes in the region by quantifying the proportions of patients in need of the service and identifying barriers to accessing the services from the patients' perspectives.

Conclusion

Pap smear uptake remains a challenge throughout SA. Multiple factors contribute to poor uptake, patient retention and adherence. The lack of knowledge about Pap smears among high-risk patients is concerning, highlighting the importance of patients' education. Community projects and outreaches aimed at enhancing community knowledge and fostering acceptance of Pap smears will be essential in achieving better results in future.

Additionally, there is a need for improvement within the clinics, including redesigning pamphlets to be more inclusive and accessible, enhancing staff attitude and encouraging a patient-centred approach that prioritises education alongside treatment. Optimisation of the clinics' overall function and patient flow should be addressed.

Although COVID-19 had an impact on various sectors of healthcare, the effects do not seem as large in terms of cervical cancer screening. However, more studies are needed from different provinces to achieve more reliable and conclusive results.

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