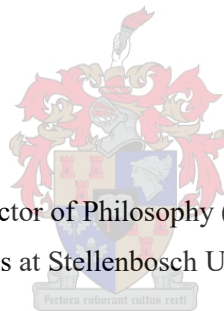Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

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Dissertation presented for the degree of Doctor of Philosophy (PhD) in the Faculty of Medicine and Health Sciences at Stellenbosch University

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Declaration

By submitting this dissertation titled **Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed-method analysis** electronically, I Fennie Mantula (22471936) declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: 29 November 2022

i

Abstract

Background: Zimbabwe is among the countries that carry the highest burden of cervical cancer globally. Regular screening has been proved to significantly reduce the disease incidence and mortality if screening coverage is high. Whereas proven and cost-effective strategies for secondary prevention of cervical cancer are available, the national screening rate is low. This justified the need for a study to determine the barriers to uptake of screening in order to develop strategies for addressing them.

Aim: This study explored factors that influence the low utilisation of cervical cancer screening services in Gwanda district, Zimbabwe, guided by the socio-ecological conceptual framework. The objectives of the study were to: Analyse socio-demographic factors associated with uptake of screening by local women aged 25-50 years; Assess their knowledge, attitudes and behaviours related to cervical cancer and screening; Identify factors perceived as barriers to screening; Determine factors health providers perceive as barriers to screening, and to examine screening uptake facilitators that could be incorporated into the programme.

Methods: An explanatory sequential mixed-method research design was employed in the study. It was conducted in two phases: The first phase was a household-level cross-sectional survey of 609 screening-eligible women selected from 10 of 34 electoral wards in the district using multi-stage random sampling. The quantitative survey informed the content of the second qualitative phase that engaged 36 women, purposively selected from the first phase, in focus group discussions as well as 25 health providers, with different roles in the screening programme, in in-depth interviews. Data analysis utilised the socio-ecological model.

Results: The first phase found knowledge about cervical cancer and screening inadequate among women, and screening prevalence among this cohort was 30.05%. Screening uptake was associated with urban and mine residency ($p = 0.009$), higher educational attainment ($p < 0.001$), being employed ($p = 0.056$) marginally, accessing health care from urban clinics and the provincial hospital that provides screening ($p = 0.007$), and a family history of cervical cancer ($p = 0.045$). Multivariable log-binomial regression showed the risk of encountering screening barriers to be lower for women who lived in urban and mine settings compared to those who lived in rural areas ($p < 0.001$). Women with adequate knowledge on cervical cancer were less likely to face barriers than less knowledgeable women ($p < 0.001$). Factor analysis identified knowledge gaps on screening, inaccessibility of screening services, and socio-cultural beliefs as major barriers to screening. Findings from the second phase confirmed inadequate knowledge, poor access to services and lack of men involvement as key barriers to screening. Screening facilitators were awareness and an adequate understanding of the benefits of screening, availability of services, and male involvement in the planning and implementation of screening programmes.

Conclusions: Major barriers to cervical cancer screening were identified at all levels of the socio-ecological model implying that individual, interpersonal, community and health system-related factors contribute to challenges women face in accessing screening. This study's findings provide policy makers, programme managers and implementers with better insights for developing targeted interventions to improve screening uptake.

Keywords: cervical cancer, cervical cancer screening, barriers, Gwanda, Zimbabwe

Opsomming

Agtergrond: Zimbabwe is een van die lande wat wêreldwyd die grootste las van servikale kanker dra. Dit is bewys dat gereelde sifting die voorkoms en sterftes van die siekte aansienlik verminder as die dekking groot is. Terwyl bewese en koste-effektiewe strategieë vir sekondêre voorkoming van servikale kanker beskikbaar is, is die nasionale siftingskoers laag. Dit regverdig die behoefte aan 'n studie om die struikelblokke vir die gebruik van sifting te bepaal om strategieë te ontwikkel om dit aan te spreek.

Doel: Hierdie studie het faktore ondersoek wat die lae gebruik van serviks kanker-siftingsdienste in die Gwanda-distrik, Zimbabwe, beïnvloed, gelei deur die sosio-ekologiese konseptuele raamwerk. Die doelwitte van die studie was om: sosio-demografiese faktore wat verband hou met die opname van screening deur plaaslike vroue van 25-50 jaar te ontleed; Hul kennis, houdings en gedrag wat verband hou met servikale kanker en sifting te evalueer; Faktore te identifiseer wat as hindernisse vir sifting beskou word; Bepaal die faktore wat gesondheidsverskaffers beskou as 'n struikelblok vir screening, en ondersoek die opnamefasiliteerders van die screening wat in die program opgeneem kan word.

Metodes: 'n Verduidelikende opeenvolgende navorsingsontwerp met gemengde metode is in die studie gebruik. Dit is in twee fases uitgevoer: Die eerste fase was 'n deursnee-opname op huishoudelike vlak onder 609 vroue wat in aanmerking kom vir keuring, gekies uit 10 uit 34 kiesafdelings in die distrik deur gebruik te maak van meer-stadium ewekansige steekproefneming. Die kwantitatiewe opname het die inhoud van die tweede kwalitatiewe fase waarin 36 vroue, doelbewus uit die eerste fase, in fokusgroepbesprekings sowel as 25 gesondheidsverskaffers, met verskillende rolle in die keuringsprogram, in diepte-onderhoude ingelig. Data-analise gebruik die sosio-ekologiese model.

Resultate: In die eerste fase was kennis oor servikale kanker en sifting onvoldoende onder vroue gevind, en die voorkoms onder hierdie groep was 30,05%. Sifting word geassosieer met stedelike en mynverblyf (p = 0.009), hoër onderwys (p <0.001), marginaal in diens (p = 0.056), toegang tot gesondheidsorg van stedelike klinieke en die provinsiale hospitaal wat sifting bied (p = 0.007), en 'n familiegeskiedenis van servikale kanker (p = 0,045). Multivariabele log-binomiale regressie het getoon dat die risiko dat skermingshindernisse teëkom, laer is vir vroue wat in stedelike en mynomgewing woon, in vergelyking met diegene wat in landelike gebiede woon (p <0.001). Vroue met voldoende kennis oor servikale kanker het minder hindernisse ondervind as minder kundige vroue (p <0,001). Faktoranalise het kennisgapings oor sifting, ontoeganklikheid van siftingsdienste en sosio-kulturele oortuigings as groot hindernisse vir sifting geïdentifiseer. Bevindinge uit die tweede fase bevestig onvoldoende kennis, swak toegang tot dienste en 'n gebrek aan mansbetrokkenheid as die belangrikste struikelblokke vir screening. Fasiliteerders vir screening was bewustheid en 'n voldoende begrip van die voordele van screening, beskikbaarheid van dienste en manlike betrokkenheid by die beplanning en implementering van screening programme.

Gevolgtrekkings: Belangrike struikelblokke vir sifting van servikale kanker is op alle vlakke van die sosio-ekologiese model geïdentifiseer, wat impliseer dat individuele, interpersoonlike, gemeenskaps- en gesondheidsverwante faktore bydra tot uitdagings wat vroue in die gesig staar om toegang tot sifting te kry. Die bevindinge van hierdie studie bied beleidsmakers, programbestuurders en implementeerders beter insigte vir die ontwikkeling van doelgerigte intervensies om die opname van siftings te verbeter.

Sleutelwoorde: servikale kanker, servikale kanker screening, hindernisse, Gwanda, Zimbabwe

Preface

This dissertation used mixed-methods to elucidate and discuss barriers to cervical cancer screening in the Zimbabwean district of Gwanda and is presented in a conventional format that combines Chapters and submission ready manuscripts presented as chapters. The dissertation is comprised of three sections: Section A presents the preliminary chapters that consist of an Introduction to the study, Conceptual Framework that was applied to guide the study, a Systematic Review article on barriers to cervical cancer screening that serves as the literature review, and a Methodology chapter. Section B presents the results of the study in five articles that are ready for submission to international peer-reviewed journals for publication, and Section C presents the Discussion and Conclusion chapters that include strengths and limitations of the study, and recommendations for future research.

Section A: Preliminary chapters

Chapter 1: Introduces the subject and presents the research question, statement of the problem, purpose, objectives and significance of the study.

Chapter 2: Presents the Conceptual Framework that guided the conduct of the study justifying its choice over other theoretical frameworks that could have been used.

Chapter 3: Describes the relevant and current literature on the barriers to cervical cancer screening in Africa and identifies where gaps exist in the literature. This chapter is in the form of a manuscript-ready article entitled "Barriers to cervical cancer screening in Africa: A Systematic Review" and will be submitted to the journal, *Frontiers in Oncology* (Impact Factor 4.848).

Chapter 4: Describes the Research Design and methods that were used to collect and analyse data and the ethical issues that were observed when conducting this study.

Section B: Results

Chapter 5: Presents findings on women's knowledge, attitudes, and practices on cervical cancer screening in the study district. This chapter is in the form of a manuscript-ready article entitled " Women's knowledge, attitudes and practices on cervical cancer screening in Gwanda district, Zimbabwe: A cross sectional survey". This manuscript is being submitted to the journal *BMC Women's Health* (5-year Impact Factor 3.204).

Chapter 6: Elucidates the barriers to cervical cancer screening in Gwanda district from the perspective of women. This chapter is in the form of a manuscript-ready article formatted for submission to the journal *Cancer Control* and entitled "Women's perspectives on barriers to cervical cancer screening in Gwanda district, Zimbabwe: A quantitative study" (Impact Factor: 1.990).

Chapter 7: Describes the barriers to cervical cancer screening in Gwanda district from the perspectives of health providers. This chapter, entitled "A qualitative study of health providers' perspectives of barriers to cervical cancer screening in Gwanda District, Zimbabwe" has been formatted for submission to the journal *BMC Public Health* (5-year impact factor 4.003)

Chapter 8: Explores the perspectives of women and health care providers on the support men provide their female partners for cervical cancer screening. This chapter is in the form of a manuscript ready article entitled

"Exploring the perspectives of women and health providers on male support for cervical cancer screening in Gwanda district, Zimbabwe" for submission to the journal *PLOS ONE* (Impact Factor: 3.240).

Chapter 9: Identifies the strategies that could be employed to increase utilisation of cervical cancer screening services by women in Gwanda district. This chapter is in the form of a manuscript ready submission entitled "Strengthening cervical cancer screening programmes in Gwanda district, Zimbabwe: A qualitative study" to the journal *BMC Public Health* (5-year Impact Factor 4.003).

Section C: Concluding chapters

Chapter 10: Is a discussion Chapter that summarises the research results of the whole dissertation and highlights the scientific contributions of the study.

Chapter 11: Concludes the dissertation and gives direction for future research.

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I am also grateful to my employer, the **National University of Science and Technology** for providing the financial support and flexible learning arrangements that enabled my study's successful completion.

A big appreciation to my husband **Bongani** who provided all the emotional and financial support that I needed. He endured sitting through the long nights just to keep me going so I could meet my targets. He is the best! May the Lord richly bless him, our daughter **Nomanjabulo Melissa** and all family members who supported me during my studies.

What shall I render unto the Lord for carrying me through this rough journey? I give all praise and glory to **Him** for taking me this far. For **His** mercy endures forever.

May God bless **everyone** who contributed to the successful completion of my PhD studies in their own unique way.

Dedication

This work is posthumously dedicated to my sister-in-law Senzeni Mantula, and spiritual sister Lynette Moyo who both died from cervical cancer in 2019. If only we had known better earlier!

"No woman should die of cervical cancer" **(Centers for Disease Control and Prevention)**

Table of Contents

List of Figures

List of Tables

List of acronyms

ART	Anti-retroviral therapy
ASIR	Age Standardised Incidence Rate
ASMR	Age Standardised Mortality Rate
CAM	Cancer Awareness Measure
CHW	Community Health Worker
CI	Confidence Interval
COVID-19	Coronavirus disease of 2019
DEFF	Design Effect
FGD	Focus Group Discussion
GLOBOCAN	Global Cancer Observatory
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HPV DNA	Human Papillomavirus Deoxyribonucleic Acid
IDI	In-depth Interview
IEC	Information, Education and Communication
IQR	Inter-quartile Range
IUCD	Intra-uterine Contraceptive Device
KII	Key Informant Interview
KMO	Kaiser-Mayer-Olkin test
LEEP	Loop Electrosurgical Excision Procedure
LBC	Liquid Based Cytology
LMIC	Low- and Middle-Income Countries
MSA	Measure of Sampling Adequacy
MOHCC	Ministry of Health and Child Care
MRCZ	Medical Research Council of Zimbabwe
OIC	Opportunistic Infections Clinic
OPHID	Organisation for Public Health Interventions and Development
PHC	Primary Health Care

PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-analysis
RHC	Rural Health Center
RR	Relative Risk
SCT	Social Cognitive Theory
SDG	Sustainable Development Goal
SEM	Socio-Ecological Model
SLT	Social Learning Theory
SRH	Sexual and Reproductive Health
SSA	Sub-Saharan Africa
TTM	Transtheoretical Model
VIA	Visual Inspection with Acetic Acid
VIAC	Visual Inspection with Acetic Acid and Cervicography
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization
ZDHS	Zimbabwe Demographic and Health Survey
ZCCPCS	Zimbabwe Cervical Cancer Prevention and Control Strategy

Glossary

Cervical cancer: A disease characterised by an uncontrollable growth of cells that originate from the uterine cervix, an anatomical structure that connects the lower part of the uterus to the vagina. The abnormal growth begins on the surface cells of the cervix and invades more deeply into the cervix and nearby tissues over time. Almost all cervical cancers are caused by persistent infection with oncogenic strains of the Human Papillomavirus (2).

Cervical cancer prevention and control programme: An organised set of activities aimed at preventing and reducing ill health and deaths from cervical cancer. The programme provides a plan of action with details on what work is to be done, who will do the work and when, as well as information about what means of resources will be used to implement the programme. The achievement of the programme is assessed periodically using a set of measurable indicators. A comprehensive programme includes key evidence-based interventions required to reduce the burden imposed by cervical cancer on women and health systems (3).

Cryotherapy: Application of a cooled metal disc called a cryoprobe to the cervix and freezing the abnormal cells to eliminate the pre-cancerous areas on the cervix (4). This procedure is performed by nurses.

Human Papillomavirus (HPV): A common virus that is transmitted sexually and can cause a variety of conditions including cervical cancer. Of the 100 HPV types, there are 14 high risk (oncogenic) strains. HPV 16 and 18 are considered the highest risk and cause 70% of all cervical cancer cases (5).

Loop electrosurgical Excision procedure (LEEP): Removal of abnormal areas from the cervix and entire transformation zone using a loop made of thin wire powered by an electrosurgical unit. The loop tool cuts and coagulates at the same time, followed by use of a bull electrode to complete the coagulation (3). The procedure is performed by doctors.

Screening: A test that is done to check the cervix for the presence of cancer or pre-cancer lesions in people without symptoms of cancer (6).

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SECTION A: PRELIMINARY CHAPTERS

Chapter 1: Introduction and background to the problem

1.1 Problem in context

Cervical cancer is a global public health problem that is more prevalent in less resourced settings particularly among middle aged women (1,2). The Human Papillomavirus (HPV) which is sexually transmitted, is the necessary although not sufficient cause of most cervical cancers (3,4). HPV infection is usually acquired by both males and females in early sexual life, and in most cases the virus is eradicated by natural immune system surveillance within eight months (5). There is currently no antiviral available to treat HPV infection (6). Women who persistently get exposed to the oncogenic types of HPV become susceptible although other factors such as; high parity, co-infection with Human Immunodeficiency Virus (HIV), early sexual debut, multiple sexual partners, tobacco smoking and long term hormonal contraceptive use have been identified as some established co-factors for the development of cervical cancer (1,3,4). All these factors increase the risk of exposure to HPV, or weaken the immune system thereby rendering the body vulnerable to various illnesses.

The high incidence and mortality rates of cervical cancer across the globe are regrettable. Consequently, the World Health Organization (WHO) has declared the disease as one of the world's greatest public health failures (7). This is grounded on it being a highly preventable and curable disease if detected early and adequately treated with known evidence-based and cost-effective strategies (7,8). The incubation period from primary HPV infection to development of invasive cervical cancer is long, ranging between 10 and 30 years (9). This slow growth provides an opportunity window for early screening, detection, tracking, and treatment of the disease across its progression (10). A death from cervical cancer should therefore be viewed as preventable and unnecessary (9). The proven prevention and treatment modalities for cervical cancer have however been poorly implemented in high disease burdened countries (7). This may be an indication that low resource settings face barriers in the implementation of the recommended strategies.

1.2 Cervical cancer prevention and control strategies

The WHO recommends that a comprehensive national cervical cancer prevention and control programme needs to be developed in accordance with the WHO framework of the 'six building blocks' to strengthen the overall health system (11).

1.2.1 The WHO six building blocks of a health system

The building blocks also referred to as 'health system enablers' are; service delivery, health workforce, health information, medical products, vaccines and technologies, financing and leadership/governance as illustrated in Figure 1.1. These components are desirable basic functions that health systems are expected to execute in order to improve health outcomes such as uptake of cervical cancer screening. When holistically applied, the combined attributes from each of the building blocks should yield a health system that is responsive to the health care needs of all stakeholders. Subsequently, health services are delivered in an effective and efficient manner with an improvement in overall general health.
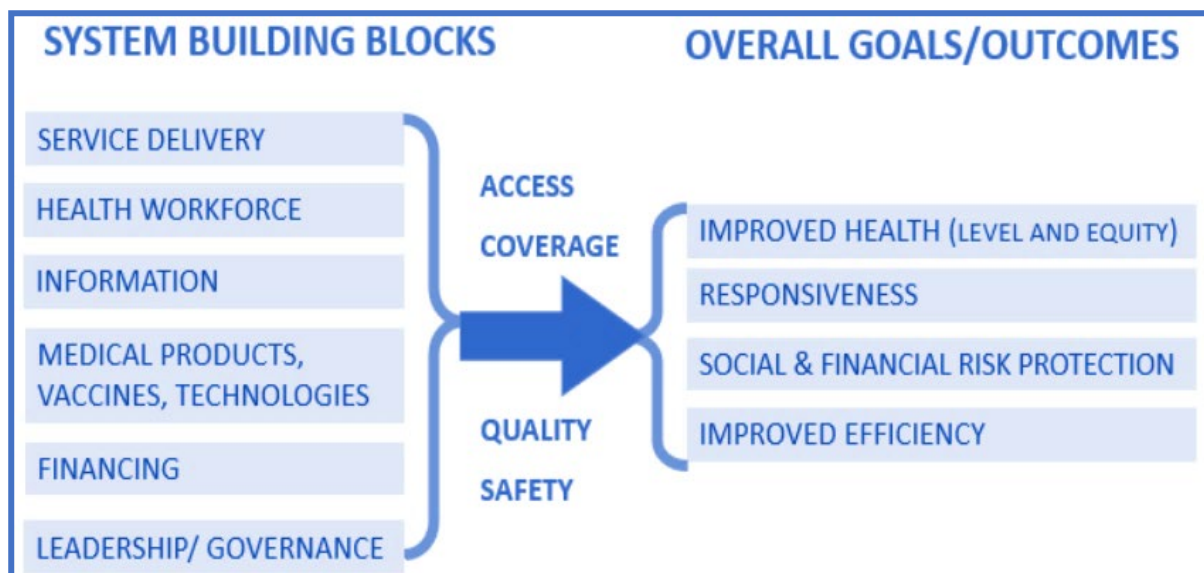
Figure 1.1: The six building blocks of a health system (Source – WHO, 2020) (7)

Application of the WHO health system framework on improving cervical cancer prevention and control programmes is summarised in sections 1.2.1.1 – 1.2.1.6, based on the current WHO global strategy towards elimination of cervical cancer as a public health problem by 2030 (7) .

1.2.1.1 Service delivery

Health services are considered as effective and efficient if they deliver safe high-quality people-centered care to all who require it, at the needed time and place and with cost-effective use of resources. Cervical cancer programmes therefore need to be made accessible to the target population at all levels of health care and delivered using models that are within limits of the national and local health budgets.

1.2.1.2 Health workforce

Comprehensive delivery of cervical cancer services requires skills mix of health workers who are trained in the dissemination of culture sensitive cervical cancer information, screening and treatment including palliative care. These health workers should be available in adequate numbers, possess the required competencies in the prevention and control of cervical cancer, and be equitably distributed across all levels of health care to ensure that services are accessible to all who need them.

1.2.1.3 Health Information

A well-organised health information system is one that timeously collects, analyses, appropriately disseminates and makes use of reliable information for the measurement of relevant indicators. Accurate statistics are a requirement for effective cervical cancer control planning and decision making at all levels of the health system. A robust data management system should be maintained for close monitoring and evaluation of the

programme. This enables continued programme review and improvement to meet the needs of the target population.

1.2.1.4 Medical products, vaccines and technologies

A well-functioning health system ensures consistent availability of essential medical products and equipment which meet quality, safety, efficacy and cost-effective standards. HPV vaccines and high-quality screening tests and treatment should be readily available for effective and sustainable programme performance. Inconsistency in the supply of screening essentials increases the risk of missed opportunities for both screening and treatment of women with abnormal test results.

1.2.1.5 Financing

Adequate financing for cervical cancer prevention and control needs to be secured for efficient programme running with assured sustainability and financial protection of the poor. Mobilisation of resources should primarily target the domestic level and be extended to other implementing partners for collaboration. Health systems should be run in an efficient manner that conserves funds for continued implementation of the programme.

1.2.1.6 Leadership / governance

Leadership or governance is the cement that holds all the building blocks together through its coordination role. This involves development of strategic policy frameworks combined with effective oversight, capacity building and the provision of relevant regulations and accountability for the programme. Leadership and governance also have the mandate of ensuring the availability and efficient application of all the health system components. International cervical cancer prevention and control guidelines should be contextualised to the relevant setting to ensure programme acceptance which results in increased uptake of services.

The WHO building blocks for strengthening health systems position cervical cancer prevention and control within an enabling environment that provides the potential to remove existing barriers for successful programme implementation. However, shortage of staff trained in VIAC screening, lack of screening equipment and commodities due to inadequate financing of the programme, and limited screening facilities could be presenting challenges to the successful implementation of cervical cancer screening in Gwanda district.

Building onto the WHO building blocks, Sacks and colleagues (2019) allude that much of health practice takes place in the community, with community health actors being highly active and influential in health education, disease prevention and treatment (12). Community organisations thus need to be actively involved in the planning and implementation of health programmes and be recognised and valued as integral to the health system within the WHO framework (12). Effective community involvement could work in favour of successful implementation of cervical cancer prevention and control programmes. Leveraging community networks such as Community Health Workers (CHWs), traditional and religious organisations and educational facilities (13), could be used to promote cervical cancer screening in Gwanda district.

4

1.2.2 Components of a comprehensive cervical cancer prevention and control programme

 WHO has prioritised the urgent scale up of cervical cancer prevention and control in its endeavour to reduce morbidity and mortality associated with the disease. The goal is to reduce the global annual age standardised incidence of cervical cancer to below 4 per 100 000 women to eliminate cervical cancer as a public health problem in the 21st century (7). To realise this goal, three key interdependent evidence-based interventions have been recommended (11). These are; primary, secondary and tertiary prevention which are further discussed in sections 1.2.2.1 – 1.2.2.3. The 90-70-90 targets for vaccination, screening and treating that have to be met by 2030 in keeping within track of achieving cervical cancer elimination are also be highlighted in the same sections.

1.2.2.1 Primary prevention

Primary prevention aims at reducing HPV infections through vaccination of young girls before their coitarche. The peak for infection is shortly after being sexually active (14), hence the need to give the vaccine just before the mean age when adolescents are likely to start engaging in sexual activities. To gain full protection, the current WHO guidelines recommend two HPV vaccine doses for young girls aged between nine and fourteen years (7) at intervals of six to twelve months. HPV vaccination can potentially reduce the long-term future burden of cervical cancer. WHO considers this intervention as the 'best buy' for cervical cancer prevention, in conjunction with high quality screening (3). To succeed in the path towards achieving the elimination of cervical cancer, the WHO has set a target that 90% of girls should be fully vaccinated with HPV by the age of 15 years by 2030 (7).

In addition to HPV vaccination, other primary prevention activities that provide culture and age-appropriate education on sexual and reproductive health need to be addressed. These include; delaying sexual debut, maintaining one sexual partner, consistent condom use, avoiding the use of tobacco and medical male circumcision (6). HPV vaccination however does not eliminate the causal impact of HPV amongst older women already infected with the virus nor does it treat HPV infection or HPV associated disease. The duration of protection acquired from this mode of primary prevention is also unknown (5) hence, HPV vaccination should not be taken as a replacement for screening (14). Cervical cancer

1.2.2.2 Secondary prevention

Cervical cancer screening is the systematic application of a test to identify cervical abnormalities in an asymptomatic population (14). The primary goal of secondary prevention is to reduce the incidence and mortality of cervical cancer through early identification and treatment of women with precursor lesions (7). Screening programmes can either be 'organised', where systematic testing is done on a well-defined population, or 'opportunistic' where testing is provided on request or coincidentally during unrelated health care interactions (15). Organised screening has generally been accepted as being more cost-effective than opportunistic screening since it benefits the greatest number of women, while making better use of available resources (14).

WHO recommends that at a minimum, cervical cancer screening should be performed at least once for every woman in the 30-49 year age group when the most benefit can be achieved, and be extended to other age groups in women with a high risk of developing the disease (11). Rather than maximising the number of tests performed in a woman's life time, the focus should be on maximising screening coverage within the at risk target group while effectively following up those women who receive abnormal test results (7). The choice of screening method is country specific, selected on the basis of risk-benefit ratio, cost, availability of screening resources, and the potential for loss to follow up (11) (see Table 1:1). Three types of tests currently available to screen for cervical precursor lesions are:

i) Conventional Papanicolaou Smear (Pap smear) and Liquid Based Cytology (LBC) tests. The Pap smear referred to as the 'gold standard,' has been the basis for screening for many decades in high resource countries (9). This test has a pooled sensitivity of 70-84%, which is the proportion of all those with precursor lesions that the test correctly identifies as positive and specificity of 88-95% (16), which is the rate at which women with no cervical abnormalities are correctly identified.

ii) HPV Deoxyribonucleic Acid (DNA) which has a pooled sensitivity of 94% and specificity of 90% (16). HPV DNA tests for high-risk HPV types.

iii) 'Screen and treat' tests which include Visual inspection with Acetic acid (VIA) and Visual Inspection with Acetic Acid and Cervicography (VIAC). VIA has a pooled sensitivity of 69-77% and specificity of 82-87% (16). Screen and treat tests are ideal for low resource settings as they are cost-effective.

Cervical cancer screening and early treatment of precursor lesions has been shown to effectively reduce the risk of developing cancer by 80% (17,18) hence, WHO has set a target for 70% of women aged between 35-45 years to have been screened twice using high performance tests by 2030, and 90% of women with precursor lesions treated (7). Secondary prevention of cervical cancer is the major focus of this current study which seeks to explore barriers to cervical cancer screening in one district of Zimbabwe.

Table 1.1: Screening methods for cervical precursor lesions (Adapted from WHO, 2014) (11)

Method	Procedure	Strengths	Limitations
Molecular screening method: HPV DNA test	The sample is taken by the provider or by the woman herself, stored in a container with appropriate preservative solution and sent to the laboratory (or processed immediately on-site if a new test is used)	Collection of the specimen is simple, allowing the possibility of self-collected specimens. •The assay result is a definite end-point. •If the new test with on-site processing and rapid results is used, a positive result can be followed by an offer of immediate treatment (single-visit approach)	It requires proprietary supplies and equipment, which may not be easily accessible. •The unit cost is often high. •Storage of materials needed for tests can be problematic. •In general, the laboratory and specimen transport requirements are complex. •Using an HPV test that is currently available, the result will not be immediately available, requiring the patient to make multiple visits and increasing the risk of loss to follow up
Visual screening method: VIA or VIAC	A trained provider examines the cervix at least 1 minute after applying 3–5% acetic acid, to visualize cell changes on the cervix. VIAC is an improvement on the VIA method, in which visual inspection of the cervix is aided by Cervicography. This entails using a digital camera to take pictures of the cervix during the procedure, with concurrent view of the results on a screen.	•This method is relatively simple and inexpensive. •The results are available immediately. •VIA/VIAC can be performed by a wide range of personnel after brief training. •Infrastructure requirements are minimal. •A positive result can be followed by an offer of immediate treatment (single-visit approach).	•After training, VIA/VIAC providers need initial supervision and continuing education (refresher retraining) and quality control and quality assurance. •The end point is subjective; there is high variability in the accuracy of results between providers. •VIA/VIAC is not appropriate for many postmenopausal women.
Cytology based screening method: a. Conventional cytology (Pap smear)	A sample of cervical cells is taken by the provider using a spatula and/or small brush, fixed onto slides and examined by a trained cytotechnician in a laboratory	•This method has proven effectiveness to decrease cervical cancer in the context of a well-functioning system. •It is widely accepted in high-resource countries. •Training and mechanisms for quality control and quality assurance are well established.	•The method is difficult to introduce and maintain. •Systems are needed to ensure timely return and communication of test results and follow-up care for screen-positive women. •Transportation is required for specimens to the laboratory and for results back to the clinic. •Cytology programmes require clinical and laboratory quality control and quality assurance. •Interpretation is subjective. •Results are not immediately available, so multiple visits are required, increasing the risk of loss to follow-up
b. Liquid based cytology (LBC)	A sample of cervical cells is taken by the provider with a spatula and/or small brush, immersed in a preservative solution and sent to a laboratory for processing and review by a trained cytotechnician.	Once cytotechnicians are proficient, LBC samples take less time to review. •Samples can also be used for molecular testing (such as for HPV DNA). •Training and mechanisms for quality control and quality assurance are well established.	•Supplies and laboratory facilities for LBC are more expensive than for conventional cytology. •Other limitations are the same as for conventional cytology

1.2.2.3 Tertiary prevention

Tertiary prevention aims at decreasing the number of deaths due to cervical cancer through treatment appropriate to each stage of cancer. Invasive cancer is treated by surgery, radiotherapy or a combination of

7

both, and chemotherapy can complement the treatment regime at late stages (14). Palliative care should be integrated into the treatment plan for relief of physical and psychological pain (11). It is critical that cervical cancer screening be linked to effective referral pathways to enable timely access to continuing care throughout the course of life so that barriers to care are minimised. To work towards achieving elimination of cervical cancer, WHO has set a target which should see 90% of women with invasive cancer being managed by 2030 (7).

1.3 Problem review

This section presents the global burden of cervical cancer and discusses the cervical cancer screening programme in Zimbabwe and Gwanda district to pave way for articulation of the research problem.

1.3.1 Global burden of cervical cancer

Cervical cancer is the fourth most frequently occurring cancer among women worldwide after breast cancer, colorectal cancer and lung cancer and third leading cancer affecting women younger than 45 years (1). Approximately 570 000 new cases and 311, 000 deaths occurred in 2018 globally, with 84% and 88% occurring in less developed regions respectively (1,3). Based on the Global Cancer Observatory (GLOBOCAN) estimates published by the International Agency for Research on Cancer (IARC), the global age-standardised incidence rate (ASIR) of cervical cancer has been estimated at 13.1 per 100 000 women and age standardised mortality rate (ASMR) at 6.9 per 100 000 women (2018 data) (1). This incidence varies widely between different regions within a range of less than 5 per 100 000 women in Western Asia to 75 per 100 000 women in Southern Africa (Figure 1.2). Cervical cancer incidence and mortality are more than two to four times lower in the highest resource compared to the lowest resource countries (1). This is attributable to the successful population-based cytological screening programmes inherent in high resource countries' health systems.
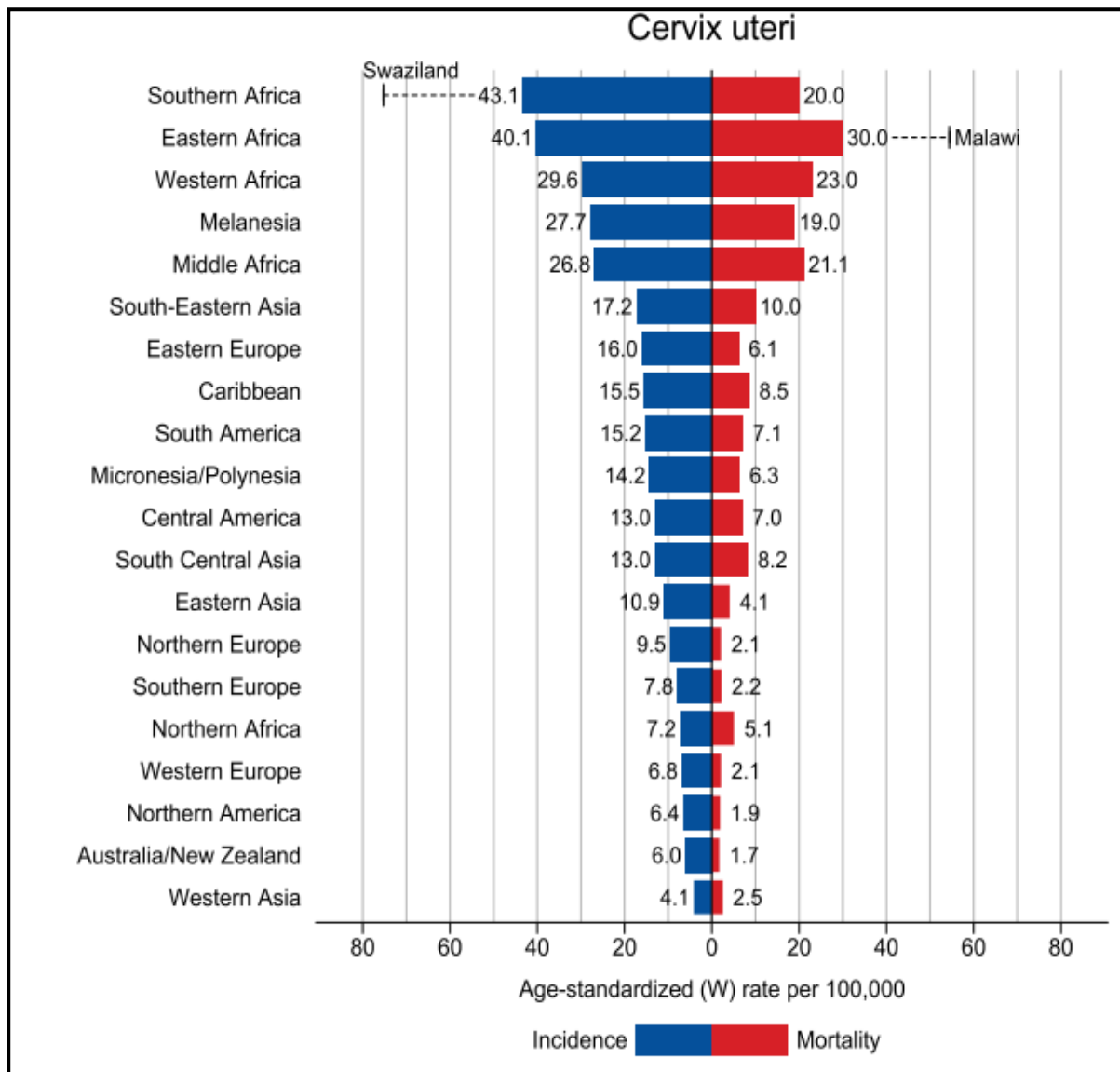
Figure 1.2: Global burden of cervical cancer (Source: Globocan, 2018) (19)

For the purpose of getting a more accurate picture of the global cervical cancer burden, high quality data drawn from region-specific population based registries worldwide was obtained from the current 'Cancer Incidence in Five Continents' series that covers the period 2008-2012, CI5 Volume XI (20). Table 1.2 shows the top 20 regions with the highest ASIRs.

Table 1.2: Crude and Age Standardised Incidence Rates of Cervical Cancer in the top 20 countries globally. Data source: Cancer Incidence in Five Continents' (C15) (18).

Population	Continent	Cases	Crude Rate per 100 000	ASR world per 100 000
Zimbabwe, Harare: African	Africa	906	24.7	86.1
Uganda, Kyadondo County	Africa	1081	9.2	49.1
Kenya, Nairobi (Africa)	Africa	1055	6.9	40.2
South Africa, Eastern Cape	Africa	744	12.9	30.0
Russia Federation, Karelia	Europe	654	18.3	29.3
China, Shexian County	Asia	334	17.2	27.2
China, Yueyanglov	Asia	283	13.8	26.8
Argentina, Chaco	Central and South America	684	12.8	26.4
Ecuador, Loja	Central and South America	76	12.0	24.9
Thailand, Chonburi	Asia	767	14.7	23.4
India, Mizoram	Asia	467	8.7	21.2
Peru, Lima	Central and South America	3161	11.0	21.1
Thailand, Chiang Mai	Asia	1203	15.2	21.0
French, Guiana	Central and South America	104	9.0	20.7
India, Dindi gul, Ambilikkai	Asia	1158	10.8	20.5
Lithuania	Asia	2424	14.5	20.4
Ecuador, Guayaquil	Central and South America	1169	9.7	20.2
Thailand, Lopburi Province	Asia	416	13.7	19.8
Bulgaria	Europe	5557	14.4	19.6
Colombia, Pasto	Central and South America	211	9.9	18.1

1.3.2 Cervical cancer burden in Africa

Africa has the highest incidence and mortality rates of cervical cancer compared to other regions of the world (21). With an estimated population of 372.2 million women aged 15 years and older who are at risk of developing the disease, 119, 284 women are newly diagnosed, while 81,687 die from the disease every year (4). Estimates of cervical cancer incidence and mortality in 2018 indicate that rates are more elevated in Southern and Eastern Africa with Eswatini having the highest incidence rate and Malawi the highest mortality rate (1,3) as illustrated in Figure 1.3.
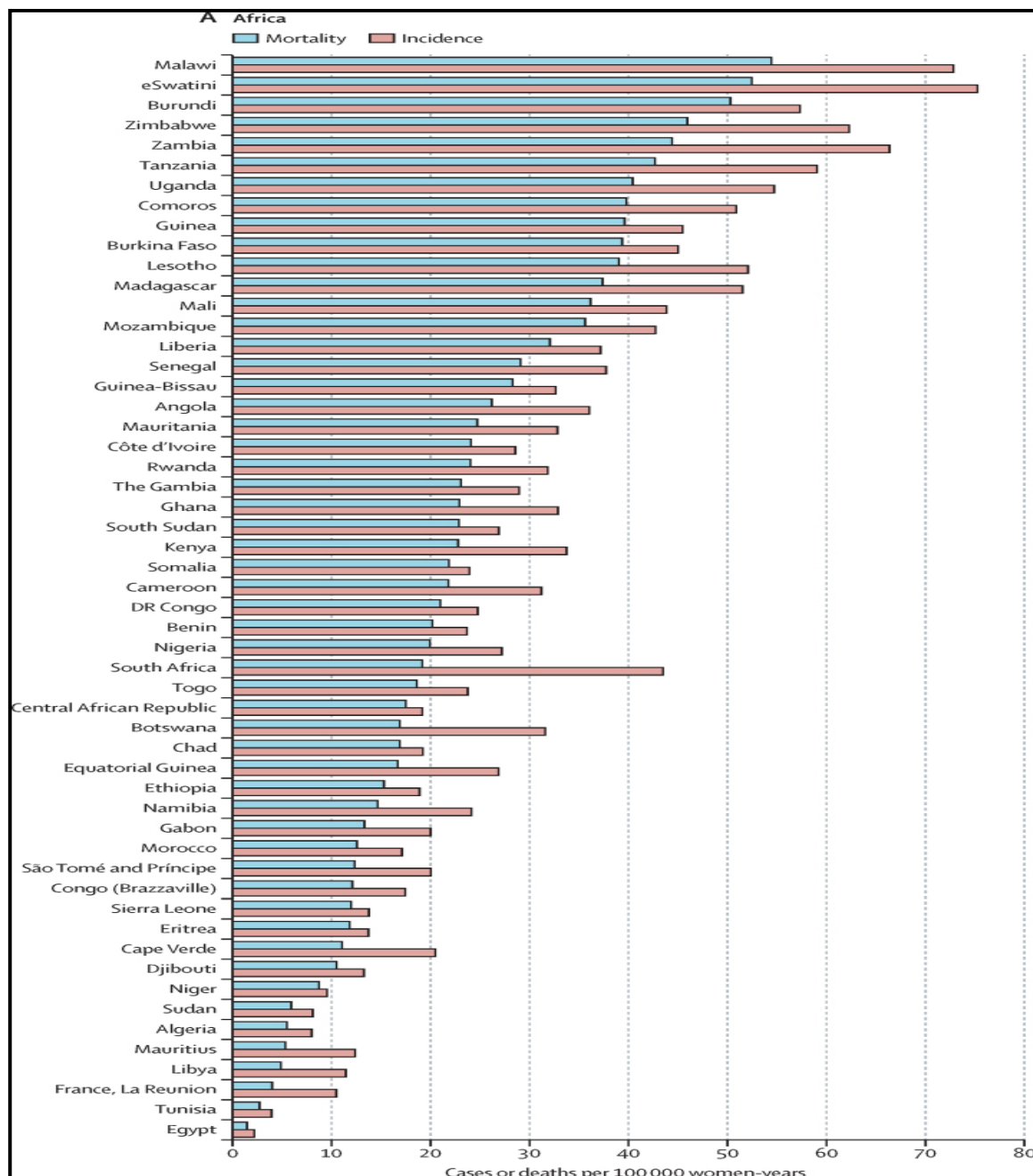
Figure 1.3: Distribution of world ASIR and ASMR of cervical cancer by country in Africa
Source: Arbyn et al, 2020 (1).

There is paucity of accurate; high-quality data from population-based cancer registries in Africa hence the actual incidence and mortality rates of cervical cancer in the region is still poorly captured. It should be noted that not many settings in Africa have cancer registries, and statistics from the few that exist are often unreliable. Data published from Africa in Volume XI of the CI5 (18) was reported from only six countries (seven registries): Zimbabwe, Harare: African; Uganda, Kyadondo County; Kenya, Nairobi; South Africa, Eastern Cape; Seychelles and Algeria Setif and Batna. Table 1.3 gives the incidence rates of cervical cancer with Zimbabwe reflecting the highest rate from the seven submitted registries.

Table 1.3: Cervical cancer incidence rates from the seven population-based cancer registries in Africa. Data source: Cancer Incidence in Five Continents' (C15) (18).

Population	Cases	Crude Rate per 100 000	ASR world per 100 000
Zimbabwe, Harare: African	906	24.7	86.1
Uganda, Kyadondo County	1081	9.2	49.1
Kenya, Nairobi	1055	6.9	40.2
South Africa, Eastern Cape	744	12.9	30.0
Seychelles	29	8.3	13.4
Algeria, Setif	164	2.7	7.0
Algeria, Batna	74	1.3	3.5

However, in many parts of the continent, the disease is often not identified until it reaches advanced stages that are associated with poor outcomes (17).

1.3.3 Cervical cancer burden in Zimbabwe

Zimbabwe is a landlocked country situated in South East Africa. It lies between the Zambezi and Limpopo rivers and is bordered by Mozambique to the east, Botswana to the west, South Africa to the south and Zambia to the north and north-west. The country is divided into 10 administrative provinces namely; Manicaland, Mashonaland Central, Mashonaland East, Mashonaland West, Midlands, Masvingo, Matabeleland North, Matabeleland South and two cities which have provincial status; Harare (capital city) and Bulawayo (second largest city).

Figure 1.4: Map of Zimbabwe (Source: nationsonline.org/oneworld/map/Zimbabwe_map.htm)

Zimbabwe has one of the highest rates of cervical cancer in the world (6) with the fourth highest age-standardised incidence and mortality rates in Africa in 2018 (1,3), up from fifth position in 2012 (22) (Figure 1.3). Cervical cancer is the most frequently occurring cancer among all women, and leading cause of cancer deaths in women aged 15-44 years (6,23). From the 3.96 million women aged 15 years and above who may be at risk of developing cervical cancer (6), it is estimated that 3 186 women are newly diagnosed and 2 151 die from the disease every year (23). Furthermore, it is projected that these figures could significantly increase by 2025 if cervical cancer prevention and control programmes are not given due attention (6). The mortality rate could be higher than that recorded in the national cancer registry due to under-reporting especially in rural areas that have poor access to health facilities (18). The high cervical cancer burden in Zimbabwe has been linked to poor screening and diagnosis and inadequate treatment facilities (18). Moreover, patients are often diagnosed with advanced stages of cancer mainly caused by a lack of awareness and understanding about its signs and symptoms, and by the lack of preventive screening services (6).

13

1.3.4 Cervical cancer screening in Zimbabwe

There has been no specific cervical cancer guidelines in Zimbabwe until 2016 when the Zimbabwe cervical cancer prevention and control strategy (ZCCPCS): 2016-2020 was developed (6). However, the Pap-smear has traditionally been used for cervical cancer screening although mostly limited to the private sector and urban areas. A national screening programme based on VIAC was introduced in a phased approach from 2010 and is available at all central, tertiary, and most district hospitals and some primary clinics (6). The aim of the ZCCPCS was to have a VIAC clinic at each of the four central hospitals, each provincial hospital, at one district in each province and at one rural health center in each district by 2020.

 The current VIAC programme recommends the following:

i) Target group for screening is women in the 18-65 years age group. This age range was widened to take into consideration; the HIV epidemic where a large number of girls were born HIV positive through mother to child transmission and therefore have a higher risk of developing high grade lesions at an earlier age, and older women who are HIV positive and have survived into the 60s because of antiretroviral therapy and have never had cervical cancer screening. However, for the period 2016-2020, HIV negative women in the 30-49-year age group are to be screened at least once, and positive women at time of diagnosis irrespective of age

ii) HIV negative women are screened every three years except in women who are treated for an abnormal test result, where the test is repeated after a year

iii) HIV positive women are screened at diagnosis or first contact, and yearly thereafter since they are at increased risk of developing cervical cancer

iv) No screening is offered during pregnancy till six to twelve weeks after delivery

VIAC screening is provided for free at public health institutions by trained nurses who refer clients with suspicious results to central hospitals (18).

The national screening coverage was estimated at 13% in 2015, with a disparity of 21% and 7% in the urban and rural areas respectively (24). Although screening uptake is generally low in all the 10 provinces of Zimbabwe, Matabeleland South Province within which Gwanda district is situated ranked among the three least screened provinces in the country (24). Gwanda Provincial Hospital is the only public health facility that provides VIAC screening services in Gwanda district since 2013, and had a screening rate of 19% in 2015 (25). The screening prevalence is expected to be much higher than this given the high number of eligible women in the district. The VIAC clinic is managed by four midwives trained in VIAC procedures and supported by two doctors who provide treatment on women with precursor lesions using Loop Electrosurgical Excision Procedure (LEEP). A Consultant Obstetrician and Gynaecologist provides oversight of the screening programme. The VIAC and Pap-smear services are also available for a fee from private practitioners in the small town. However, only few women, particularly those on medical insurance can afford this service.

1.4 Research question

Based on the background information, this study seeks to answer the broad research question:

What barriers exist for women in Gwanda district in accessing cervical cancer screening?

The following research questions have guided the study:

1. What socio-demographic factors are associated with uptake of cervical cancer screening by women aged 25-50 years in Gwanda district?
2. What is the level of knowledge, attitudes and behaviours towards cervical cancer screening among women aged 25-50 years in Gwanda district?
3. What are the perceived barriers to cervical cancer screening among women aged 25-50 years in Gwanda district?
4. What factors do health service providers perceive as barriers to cervical cancer screening among women in Gwanda district?
5. What strategies could be used to strengthen screening for cervical cancer in Gwanda district?

1.5 Problem statement

Zimbabwe has one of the highest burden of cervical cancer in the world and mortality from this disease is high (6). However, the national screening coverage is low, estimated at 13% in 2015 against a target of 50% by end of 2020, and worst recorded in the rural provinces (24). There has not been another demographic and health survey since 2015. Seemingly, the screening rate for Gwanda district is low. This is, in spite of, screening services being available for free at the district's referral center and urban clinic. Although evidence suggests that screening can significantly reduce the risk of developing cervical cancer by 80% (26), uptake of screening services by women who have the potential to benefit from the screening programme is low in this district. This could be an indication that women face challenges in accessing cervical cancer screening, which this study seeks to unravel.

1.6 Purpose of the study

The purpose of this study is to explore factors that determine poor utilisation of cervical cancer screening services among women in Gwanda District. Findings could provide input into the development of the next term strategy for strengthening the VIAC programme. This could result in increased uptake of screening, contributing to a reduction in the country's burden of cervical cancer.

1.7 Research objectives

The objectives of this research are:

i) To analyse the socio-demographic factors associated with uptake of cervical cancer screening by women aged 25-50 years in Gwanda District;
ii) To assess the knowledge, attitudes and behaviours related to cervical cancer and screening among women aged 25-50 years in Gwanda District;

iii) To identify factors that women aged 25-50 years in Gwanda District perceive as barriers to cervical cancer screening;

iv) To determine health-care providers' perspectives on barriers to cervical cancer screening uptake by women in Gwanda District; and

v) To identify strategies for strengthening screening for cervical cancer in Gwanda district.

1.8 Significance of the study

This study could address potential areas of poor implementation of the current ZCCPCS on secondary prevention of cervical cancer in Gwanda district. Ineffective implementation of the strategy creates health system barriers that directly or indirectly contribute to individual, interpersonal, and community-related barriers to screening. Identifying context-specific barriers to screening is thus a necessary first step towards developing targeted strategies to overcome the identified barriers, rather than basing corrective measures from over generalised results of research conducted in different contexts.

Furthermore, identifying aspects that undermine the provision of cervical cancer screening could highlight weaknesses in the current ZCCPCS that need to be addressed to improve uptake of the programme. This study will therefore to an extent serve as an evaluation tool on the achievement of Objective 3 of the 2016-2020 ZCCPCS which is; to increase access to VIAC based 'see and treat' services for cervical cancer prevention among eligible women in lower and higher level facilities (6). Findings of this study will measure the extent to which programme outputs have been realised, hence contributing towards updating the current ZCCPCS to strengthen the cervical cancer screening programme.

Finally, to the researcher's knowledge there is no published literature in Zimbabwe that has simultaneously explored barriers to cervical cancer screening from the perspective of both urban and rural population groups, nor included grassroot-level health workers in the study sample. The focus has mostly been on women in rural districts and health facility-based service providers. Thus, it has not been established if perceptions and expectations on the cervical cancer screening programme vary with residential location, or level of health service delivery. It is envisaged that this study will contribute to knowledge creation in these areas accordingly.

1.9 Delineation of the study

This study was conducted in Gwanda, one of the seven districts of Matabeleland South province in Zimbabwe. The other six districts were not included due to time and financial restrictions. The study was also conducted in the public sector where cervical cancer screening is offered for free and not in the private sector where a fee is charged for the service. There were two reasons for choosing Gwanda district for this study:

i) Although additional VIAC clinics have been established at all district hospitals in phases, Gwanda Provincial Hospital was the first public health facility in the province to provide VIAC screening services in 2013. It is expected that women in this district should be aware of the programme that has run for more than eight years to date, to be able to access it.

16

ii) This was a follow up study on an earlier study conducted among women attending health services at Gwanda Provincial Hospital in 2015, to assess the uptake of screening which was estimated at 19% (25). This opened room for further research to determine the barriers that women faced in accessing screening and secondarily, to assess screening trends over time.

Perceptions of women accessing screening from the private sector could vary widely from those who access the service from the private sector due to differences in the quality of the service. Responses from private sector service providers and recipients could skew the results, which would make them ungeneralisable to the populace of Gwanda district. It is for this reason that the private sector was excluded.

This study uses the Socio-ecological model (SEM) to categorise and better understand the barriers women face in accessing screening services. The SEM falls within group level models that recognise the multiple levels of influence for health behaviour. These levels range from individual factors to broader community and policy influences (27). This model was deemed appropriate to answer the research question as the decision to screen for cervical cancer is likely to be influenced by many factors beyond the individual level. Other models commonly used to determine the factors that influence cervical cancer screening behaviours include the Health Belief Model (HBM). This model was not used in this study because it only predicts and explains health behaviour that influences health outcomes at interpersonal level (27). Use of the HBM would have limited the scope of the current study to individual level influences.

1.10 Assumptions

Self-reported information was obtained from women using researcher-administered questionnaires and Focus Group Discussions (FGDs). Some of the same questions were posed to key informants and health-service providers in order to detect inconsistencies. It is assumed that all participants were honest in their responses.

1.11 Brief Chapter overview

A theoretical model will be applied to the research problem in the next chapter. Chapter three is a systematic review of barriers to cervical cancer screening in Africa while Chapter four provides detail on the research design and methodology employed in this study. Results of this study will be presented in Chapters five to nine and discussed in Chapter ten. Chapter eleven will conclude this report and provide a summary of the research findings, study conclusions and recommendations and means in which these can be addressed. Suggestions for future research will also be specified.

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Chapter 2: Theoretical underpinning of the study

2.1 Introduction

In the previous chapter, the background and purpose of the study were presented. This chapter discusses the theoretical framework that will be applied to the research question in order to gain a deeper understanding of the research problem. The socio-ecological model (SEM) will be used to examine a wide range of elements that influence and contribute to the low uptake of cervical cancer screening by women in Gwanda district, Zimbabwe. This model was chosen based on its assertion that individuals are embedded within larger social systems and therefore, health outcomes are influenced by their interaction with their environments (1). The SEM is thus a suitable tool to explore screening behaviours as a function of interconnected individual and contextual factors. The World Health Organization (WHO) health systems framework already described in detail in Chapter 1, Section 1.2.1, will be applied to the analysis of health system barriers to cervical cancer screening in this study.

2.2 Theories of health behaviour change

The most successful public health programmes and initiatives are grounded on an understanding of health behaviours and the context in which they occur (2). Interventions to improve health behaviour should therefore be designed based on appropriate theories of behaviour change. A growing body of evidence suggests that interventions developed with an explicit theoretical foundation are more effective than those that lack a theoretical base (3).

Glanz and colleagues (2) define a theory as a set of interrelated concepts, definitions and propositions that explain or predict events or situations by specifying relations among variables. Consequently, a theory presents a systematic way of understanding events, behaviours and situations. Theories can direct the inquiry to understand why people exhibit health promotion behaviours in the way they do, identify the information needed to design effective strategies and provide insight into the design of programmes to make them successful (2). On the other hand, models describe how a process occurs although not explaining why it occurs in that manner (4). Models may also draw on a number of theories to get a better understanding of a particular problem in a specific context or setting (5). Both theories and models comprise of concepts, which are their building blocks or main components, and constructs, which are concepts that have been developed to be used in a specific model or theory (4). Theories and models that have not been rigorously tested although they provide a structure on which to tackle the research problem are referred to as theoretical or conceptual frameworks (5).

2.2.1 Types of health behaviour change theories

The goal of effective public health programmes is to help people maintain and improve their health and reduce the risk of disease (3). This usually requires a change of behaviour at many levels. Health behaviour theories

are best explained at three levels of influence namely; intrapersonal or individual, interpersonal and community or group level theories (5) (Table 2.1).

Table 2.4: Categories of health behaviour theories

Concept	Definition
Intrapersonal level	Individual characteristics that influence behaviour such as knowledge, attitudes, beliefs and personality traits
Interpersonal level	Interpersonal processes and primary groups including family, friends and peers that provide social identity, support and role definition
Community / Group level Institutional factors	Rules, regulations, policies and informal structures which may constrain or support recommended behaviours
Community factors	Social networks and norms, or standards which exist as formal or informal among individuals, groups and organisations
Public Policy	Local, state and federal policies and laws that regulate or support healthy actions and practices for disease prevention, early detection, control and management

2.2.1.1 Intrapersonal / individual theories

Intrapersonal or individual level theories assert that individual behaviour is the fundamental unit of group behaviour hence, achieving community and institutional change requires influencing the individual (5). The intrapersonal theories focus on factors within the person that influence his behaviour such as knowledge, attitudes, beliefs, motivation, self-concept and past experiences (6). The theoretical constructs are thus concerned with individual motivational determinants of the likelihood of performing a certain behaviour (5).

2.2.1.2 Interpersonal theories

Health behaviour theories assume that at the interpersonal level, individuals are influenced by their interaction with their social environment. The thoughts, opinions, feelings, advice, behaviour and emotional support and assistance of the people surrounding an individual affect and influence their decisions (5,6). The individual also has a reciprocal effect on those people (5). These other people could be family, friends, peers, work mates and even health service providers. For this reason, interventions built on interpersonal theories target both the individual and their social environment.

At the intrapersonal and interpersonal levels of influence, the theories of health behaviour are generally cognitive and behavioural. According to the National Cancer Institute (5), three central concepts cut across these theories:

i)   Behaviour is facilitated by cognitions, that is; what people know or think affects their health

ii)   Although not sufficient on its own to produce behaviour change, knowledge is a necessary component

iii)   Perceptions, motivations, skills and the social environment are key influences on behaviour.

2.2.1.3. Community level or group theories

Community level models provide frameworks for implementing multi-dimensional approaches for promoting healthy behaviour (5). These theories focus on factors within social systems such as the community, organisations, institutions and public policy (6). They suggest strategies and initiatives that can be used to modify those factors (6). The models complement educational approaches in an attempt to modify the social and physical environment to support a positive change in behaviour (5).

For population-focused programmes, little value is added in adopting a programme that is solely oriented to modifying individual behaviour (3). A mix of approaches which embrace an ecological perspective helps to provide the best support and guidance to individuals, groups and communities as they work to develop healthy lifestyles (2,4). Cervical cancer screening is a population-based programme hence, application of a community/group level behaviour change theory is appropriate for addressing the research question.

2.3 Social and Behavioural Science theories

Social and Behavioural Science based theories have been found to be most suitable for the development, implementation and evaluation of health promotion interventions (3). The most commonly used of these theories are the Health Belief Model, Transtheoretical Model also referred to as the Stages of Change Model, Social Cognitive Theory and the Socio-ecological Model. These are discussed in detail in the following sections 2.3.1-2.3.4

2.3.1 The Health Belief Model (HBM)

The HBM was one of the first theories of health behaviour change developed in the 1950s to help understand the reasons that made people fail to adopt disease prevention strategies and early disease detection screening tests offered by Public Health departments (7). The HBM theorises that people's beliefs about whether they are at risk for a disease or health problem and their perceptions of the benefits of taking action to avoid that particular disease, influence their readiness to take action (2). The HBM asserts that health behaviour is the outcome of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cures to action and self-efficacy. The Boston School of Public Health (7) gives a summary of the constructs as follows:

i)   Perceived susceptibility refers to the degree to which a person feels at risk for a health problem such as cervical cancer in this study, which will be applied to all the constructs

22

ii)   Perceived severity refers to the degree to which the woman believes the consequences of developing cervical cancer will be severe

iii)   Perceived benefits refer to the woman's perception of the effectiveness of cervical cancer screening to reduce the threat of developing cervical cancer. The course of action the woman takes relies on the evaluation of both perceived susceptibility and perceived benefit, such that she would accept screening if she perceived it as beneficial

iv)   Perceived barriers refer to the woman's feelings of obstacles to accessing cervical cancer screening. The woman weighs the benefits of screening against the perceptions that it may be expensive, dangerous, painful, time consuming or inconvenient.

v)   Cues to action refer to the stimulus needed to trigger the decision-making process to accept screening. These cues can be internal such as having a gynaecological problem, or external such as illness of a family member or advice from others

vi)   Self-efficacy refers to a woman's confidence that she can undertake screening for cervical cancer.

The HBM was deemed not suitable to address the research question of the current study. This is because the model operates at the intrapersonal level and would therefore not address the research question in a comprehensive manner. Supported by the Boston University School of Public Health (7) in taking this decision, the HBM has limitations which render it inadequate for the nature of inquiry of this study because; it does not account for the women's attitudes and beliefs, it assumes that everyone has access to equal amounts of information on cervical cancer and screening which is not the case, and it does not account for the environmental and economic factors that may prohibit or enhance screening. Although the HBM's intrapersonal constructs are useful, for the most effective use of the model in this study, it would need to be integrated with other models that take into account the environmental context.

2.3.2 The Transtheoretical Model or Stages of Change Model

The Transtheoretical Model (TTM) also called the Stages of Change Model views behaviour change as a progression through a series of stages with the recognition that people do not change behaviours quickly and resolutely, but rather continuously and in an incremental manner (7). Long term health behaviour change thus involves multiple actions and adaptations over time (2). The key element in the TTM is the 'stage of change' which proposes that individuals are at different stages of preparedness towards adopting healthful behaviours (3).

The TTM describes a sequence of steps in successful behaviour change according to the Boston University School of Public Health (7) as follows:

i)   Precontemplation, the stage at which there is no intention of taking action, cervical cancer screening in this study. At this stage, the woman neither realises the importance of screening nor does she have any interest to screen in the foreseeable future, defined as within the next six months

ii)   Contemplation, the stage at which the woman starts considering getting screened in the foreseeable future. The woman is still weighing the health risks and benefits of screening and places equal emphasis on both. Uncertainty may prevent or delay her progression to the next stage

iii)   Preparation or determination, the stage at which the woman now decides to get screened within the next 30 days. She takes steps towards getting the procedure done, such as seeking more information on screening and where screening is performed. The woman at this stage has come to believe that screening helps in the prevention and control of cervical cancer

iv)   Action is the stage at which the woman accesses screening

v)   Maintenance is the stage when the woman has sustained screening behaviours for a while and intends to have rescreens at the appropriate times going forward

vi)   Termination is the stage at which the woman has no desire to return to the unhealthy practice of neglecting screening and is self-confident that she will never default. On the contrary, this stage is rarely attained, and people tend to stay in the maintenance stage. The termination stage is therefore often not considered in health promotion programmes.

The TTM provides intervention strategies specifically tailored to each stage with the belief that the individual will move forward to the next stage in the behaviour change process in response (4).

Although the TTM could be useful in obtaining a better understanding of why women who are at risk for cervical cancer are not forthcoming to participate in screening programmes, it was not appropriate for this study. Similar to the HBM, the TTM operates at the individual level and ignores the social context in which the change occurs. Its application would have narrowed the scope of the investigation to just the beneficiaries of screening without addressing the broader issues.

2.3.3 The Social Cognitive Theory

The Social Cognitive Theory (SCT) evolved from research on the Social Learning Theory (SLT) whose basic premise is that people learn not only through their personal experiences, but also by observing the actions of others, and the results of those actions (3). The SLT later developed into the SCT which describes a dynamic and ongoing process in which person factors, environment factors and human behaviour exert influence upon each other (5). The SCT considers the unique way in which individuals acquire and maintain behaviour, while also considering the social environment in which that behaviour is performed (7). The individual's past experiences are taken into account since they influence reinforcements and expectations that determine if the individual will engage in a specific behaviour, and the reasons for engaging in that behaviour (7). The SCT has the strength of not only initiating positive health behaviours, but also helping to maintain those behaviours, which is the goal in public health (7).

The SCT integrates concepts and processes from cognitive, behaviourist and emotional models of behaviour change and hence has many constructs the key of which are summarised below according to the Boston University School of Public Health (7):

i)   Reciprocal determinism

This is the central point of the SCT. It refers to the reciprocal interaction of the person, taking into account their set of learned experiences, the environment, which is the social context within which change occurs, and behaviour, which is the response to stimuli that results in that change. Positive behaviours for cervical cancer screening could be promoted through individual and group health education sessions that promote screening and population-based screening campaigns that communicate information on the health risks for not screening and the benefits of screening. Universal knowledge on healthy screening behaviours could influence individuals and social systems for change of attitude and enhance social support for screening. A woman eligible for cervical cancer screening can thus be both an agent for change and a responder to change (2).

ii)   Behaviour capability

To perform a behaviour, a person needs to know what to do and how to do it. This refers to the individual's ability to perform a behaviour through essential knowledge and skills. Awareness of risks associated with inadequate screening and benefits of screening creates the precondition for change. Demand creation strategies need to be employed so that women are enabled to seek screening.

iii)   Expectations and expectancies

Before engaging in a behaviour, people will always anticipate the consequences or results of their action and these expectancies can influence the successful completion of a behaviour. Expectancies focus on the value that is placed on the outcome of the behaviour and are subjective to the individual. Positive outcomes of screening such as detection and treatment of precursor lesions before they progressed to cancer can be modelled as a motivator for screening and contrasted to the cost of invasive cervical cancer in a woman who had never been screened.

iv)   Observational learning

The SCT asserts that behavior can be acquired through observing the actions performed by others and then reproducing those actions. Women who have been screened can be used as champions to motivate others to do the same. If women see and get first-hand information from those who comply with screening recommendations, they are likely to become motivated for screening.

25

v)   Reinforcements

This refers to the internal or external responses to a person's behaviour that increase or decrease the likelihood of repeating the behaviour. The reinforcements can be positive or negative and can be initiated by either the individual or the environment. Positive reinforcements increase a person's likelihood of repeating the behaviour. It is therefore important to instill the habit of self-initiated rewards on women who undergo the first screening test, so that they are encouraged to have repeat tests at the recommended times. External rewards could be in the form of incentives such as free screening to eliminate the barrier of non-attendance due to unaffordability. Reinforcement is the SCT construct that closely links to the reciprocal relationships between behaviour and the environment (7).

vi)   Self-efficacy

Self-efficacy, the core construct in the SCT is a person's perceived ability to successfully bring about specific change of behaviour in a particular context (2). The person's specific capabilities and other individual factors as well as environmental factors such as barriers and facilitators have an influence on self-efficacy. Health-service providers can help women increase their self-efficacy for screening through deliberate efforts that empower them to approach behaviour change in small incremental steps. Dissemination of information on cervical cancer and the importance of screening and use of role models are the initial steps which could be used to promote positive screening behaviours.

A limitation of the SCT is that it assumes that changes in the environment will inevitably lead to changes in the person, which may not always be the case (7). The applicability of all the SCT constructs to cervical cancer screening barriers could be difficult as some are loosely fitting to address the research question in this particular study. The SCT also operates at the interpersonal level of influence and does not consider broader community level factors which could hinder women from screening. It is for these three limitations that the SCT could not be used in this study.

2.3.4 The Socio-Ecological Model

The SEM originates from Bronfenbrenner's ecological systems theory that was introduced in the 1970s to explain how the immediate and surrounding environment affects the way in which humans develop (8). Human development is illustrated as multi-level nesting circles that place the individual at the center surrounded by five environmental systems. Bronfenbrenner in Golden and colleagues (1) describes the layers as follows :

i)   The microsystem is the closest to the individual and contains the strongest influence and embodies the interactions of the immediate surroundings. It includes family and peers.

ii)   The mesosystem is the second circle which includes those people that the individual has direct contact with such as neighbours, schoolmates, workmates and churchmates.

iii)   The exosystem are the social networks and community contexts. Although they do not impact the individual directly, they apply interactive forces on the individual which can be both positive and negative.

iv)   The macrosystem refers to the cultural and religious beliefs and values and influences which the individual is socialised in, and which have a strong impact on the individual's behaviour.

v)   Lastly, the chronosystem is made up of the environmental events and transitions that occur throughout an individual's life including socio-historical events. These influence future behaviour.

A change in any of the environmental systems can potentially cause change in the others and affect the way the individual will develop and behave.

Bronfenbrenner's multilevel framework has evolved and undergone several revisions over time into SEMs, key of which was developed by McLeroy and colleagues in 1988 (9). Consistent with the SCT concept, SEMs suggest that health behaviours are shaped through a complex of determinants at the different levels of influence. The interactive characteristics of individuals and the environment which includes the physical, social and political components influence the way in which individuals will respond to a stimuli (10). Ecological models seek to describe the multiple levels of influence on individual behaviour in view of creating conducive environments for the promotion of health (11). Rather than focusing on the woman alone, the framework explores the various interrelated factors that could contribute to the development of a specific behaviour (11). In addition to helping understand factors that affect behaviour, SMEs also provide guidance in the development of successful interventions through analysis of the interactions between the individual and their environment.

The generic SEM by McLeroy and colleagues (9) views behaviour to be determined by the following:

i)   Intrapersonal or individual factors

These are characteristics of the individual that have the potential to drive them into engaging in a specific behaviour such as cervical cancer screening. The characteristics are unique to the individual and include socio-demographic features such as age, education and income, and the woman's knowledge, attitudes, beliefs and developmental history as discussed under types of behaviour theories in Section 2.2.1.

ii)   Interpersonal or relationship factors

The second level of influence are the individual's closest social circles who are the woman's support system (12) such as the spouse or sexual partner, family members and peers. These formal and informal structures are important sources of influence in the decision a woman would take for screening as they provide emotional support, information and assistance in fulfilling social and personal obligations (9). Interpersonal interventions to promote screening at this level should focus on changing the woman's behaviour through social influence such as peer education, with the proximal target being to address social norms and influences (9).

iii)   Institutional factors

These refer to organisational characteristics and formal and informal networks within defined boundaries (9). In the health system, focus is on the availability and accessibility of screening services and sufficiency of resources. The quality of the service can be a determining factor on the women's decision for screening. Interventions at the Institutional level need to start with a programme performance evaluation to determine if any problems exist in delivery of screening services. This should be followed by an evaluation of potential solutions and modifying what has previously been implemented to provide innovations which are then integrated into the programme. This current study hopes to contribute towards such an innovation to improve screening rates in Gwanda district.

iv)   Community factors

These are influences at the level of larger groups which include friendship networks and neighborhoods, or a definition by geographical boundaries or political terms (9). Factors at this level are broad societal issues that include social and cultural norms that may support or dissuade a woman's decision to screen. Cultural and gender norms and community beliefs play a role on how cervical cancer and screening are perceived. Community focused interventions for the promotion of cervical cancer screening derive from partnerships with mediating structures such as influential community leaders who play a role of connecting individuals with the social environment for social change.

v)   Public policy

Public policy is concerned with developing and overseeing the implementation of regulatory policies, laws and procedures to protect the health of communities (9). Policies for cervical cancer screening should enable easy access of the service such as free or subsidized screening, establishing eligibility criteria for screening and creating awareness about the screening programme.

The SEM has the strength of facilitating the exploration of many interrelated factors that could contribute to poor utilisation of screening services. It can also direct intervention efforts on different predisposing factors as opposed to focusing on the woman alone. Nonetheless, the model has its limitations. Application of the SEM helps to identify factors that contribute to a certain situation but does not give insight into the extent to which each factor contributes to the problem (11). This makes it difficult to ascertain which aspect of the model to focus on, hence the need to address all barriers at the different levels of influence simultaneously (13). However, when multiple interventions are implemented at the same time, an intervention at one level has the potential to conflict with an intervention at the other level (13). Multifaceted interventions are also time consuming, costly to implement and difficult to assess their impact at multiple levels (11).

Despite the above-mentioned limitations, the SEM remains quite an effective tool in addressing identified health problems as long as the interventions are well planned (13). The interconnected barriers to cervical cancer screening operating within and across the different levels of the model will be identified in the current study. Combined with the explanatory benefits of the mixed methods approach used, an in-depth examination and understanding of the research problem from the perspectives of both the service users and health service providers at the community, primary and provincial levels of health care is conceivable.

In the next section 2.4, the theoretical framework that guides the current body of research is reviewed, with an explanation on how it has been applied to the study.

2.4 Theoretical Framework: The Socio-Ecological Model

The current study examines factors which constrain women from accessing free cervical cancer screening services in Gwanda district, Zimbabwe. The motivation for using the socio-ecological perspective for this study is its ability to provide a systematic and holistic approach to understanding the interaction between various dimensions of the model and how this presents barriers to cervical cancer screening. The identified factors are analysed deeply and understood in context. Consequently, this study aimed at using the SEM to identify the most severe challenges/barriers to the adoption of screening behaviours that are most amenable to interventions to engender change. Results of the study could give direction in the development and targeting of cervical cancer screening promotion strategies to different angles of behaviour influencing factors. Furthermore, the SEM has often been used as a Conceptual Framework in other cervical cancer related studies (14,15), and this provides confidence in its validity.

The SEM most relevant to this study was that proposed by Kaufman and colleagues (11). The model is similar to that of McLeroy and colleagues discussed in Section 2.3.4 although with a different ordering of the levels of influence from the individual related factors. Kaufman and colleagues also stratify the factors that make up behaviour into five levels namely; individual, interpersonal, community, health system and structural factors. Figure 2.1 gives an illustration of the five levels of influence used in this study to identify barriers to cervical cancer screening. The constructs were based on the review of related literature and the pretesting of data collection instruments.
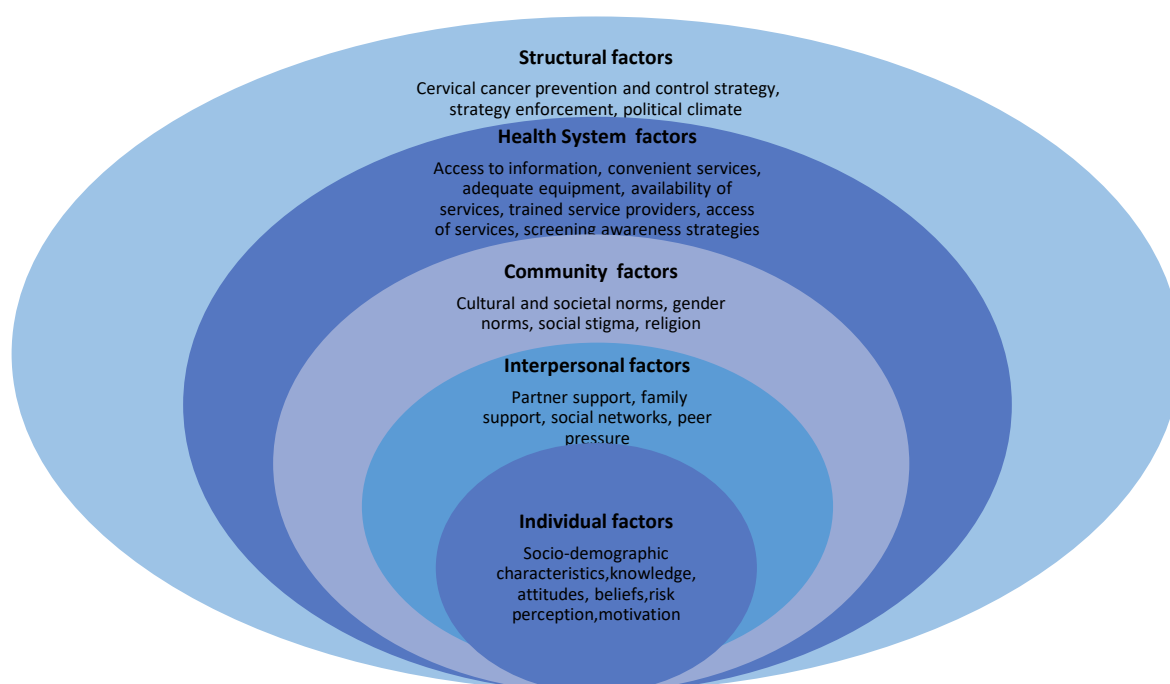
Figure 2.5: Socio-ecological model for examining barriers to cervical cancer screening constructed for this study.

2.5 Application of the SEM to the study

The SEM is the lens through which the research questions were viewed and understood. Table 2.2 provides insight into where in the current research the framework was applied to answer the research questions.

Table 2.5: Application of the Conceptual Framework to the research study

How the framework was applied to the study	Chapter
Literature Review Theoretical framework directed justification for not using alternative frameworks Guided the search for relevant literature on barriers to screening from the perspective of women, support networks and health systems to address the constructs in the model (analysing literature that the framework is developed on) Focused the context for the research Provided an overview of constructs for the model and variables under each construct	3
Introduction and background to the problem The framework provided information for the definition of the research questions Guided the formulation of research objectives to provide focus and clarity to variables that were investigated in the study	1
Research design and methodology Influenced choice of research methods to address all four constructs of the model Guided the development of data collection instruments as determined by the levels of influence for behaviour and study objectives Clarified relationships among variables Provided coherence between different tasks in the study design	4
Results Informed the structuring of the results	5-9
Discussion Served as a framework for analysis of data	10
Conclusion Framework was evaluated to determine its suitability in addressing the research question	11

2.6 Conclusion

This chapter discussed and compared the relevant Social and Behavioural Science theories central to the broad purpose of behaviour change. The SEM was described and motivation for its application to the research process

underscored. Ecological models have developed from the works of Bronfenbrenner and McLeroy and colleagues among others and adapted for various disease prevention and health promotion programmes. Central to the socio-ecological perspective is the concept of the multifaceted and interactive effects of personal and environmental factors that drive health behaviour. This concept is appropriate in addressing this study which examines factors that contribute to the poor utilisation of cervical cancer screening services in Gwanda district, Zimbabwe.

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Chapter 3: Barriers to cervical cancer screening in Africa: A Systematic Review

This chapter serves as a literature review on barriers to cervical cancer screening in Africa, and is presented as a manuscript-ready submission to the journal *Frontiers in Oncology*.

Contribution to field

Evidence before this review suggests that most African countries lack organised cervical cancer screening programmes while the available services are poorly implemented. Subsequently, uptake of screening is low as a result of poor access to screening services and a poor understanding of the importance of screening by most women and their communities. An analysis of the findings of this systematic review shows that improving the screening rates will require a scale-up of screening services. This can be achieved through increasing screening sites and knowledge levels on cervical cancer screening which should include the application of culture-sensitive strategies to address socio-cultural and religious beliefs that present barriers to screening. The primary health care model that promotes delivery of accessible, acceptable and affordable health services to communities is an approach that could successfully be implemented to reduce barriers to cervical cancer screening in Africa. These findings should serve to inform African countries in developing screening demand creation strategies that are appropriate for their settings and based on a clear understanding of the socio-cultural and policy issues that act as drivers in the poor uptake of screening.

Abstract

Background: Africa has one of the highest rates of cervical cancer in the world. Current evidence suggests that the incidence and mortality rates of the disease within the continent are on the rise. These unacceptable rates can be reduced through a comprehensive approach that includes screening. Screening has been shown to reduce the burden of cervical cancer by up to 80% through increasing the opportunities for effective treatment

and survival. Uptake of screening is however low in most African countries. This systematic review is an update on barriers to cervical cancer screening of two previously conducted reviews in the same region. The review explored the major barriers to cervical cancer screening in Africa in order to contribute strategies towards improving the uptake of screening and propose areas for further research.

Methods: We searched Medline, EMBASE, CINAHL, Scopus, African Index Medicus, and Africa Wide Information in May, 2019 without time, language or study design limits to broaden the number of eligible studies. We excluded dissertations, studies focused on high-risk women and conference abstracts. Two independent reviewers selected the studies for inclusion in the review. One reviewer extracted the data which was cross checked for accuracy by a second reviewer. For quality assessment, the two reviewers independently evaluated the quality of the studies using the "standard quality assessment criteria for evaluating primary research papers."

Findings: From a potential 2,365 studies, we included 24 studies from 11 countries. Eight were qualitative, 13 quantitative and three used the mixed-method approach. All the 24 studies satisfied the quality criteria. The primary barriers were identified as poor access to screening services, lack of awareness and knowledge about cervical cancer and screening and socio-cultural influences. Service providers perceive lack of skills, lack of equipment and supplies to conduct screening and staff shortages as major barriers to the provision of screening services.

Conclusions: Barriers to cervical cancer screening for women in Africa are mostly health system related. These range from; centralization of screening to higher level facilities, failure to take screening programmes nearer to communities, shortage of trained personnel to provide screening services, lack of equipment necessary for screening and lack of education of women about cervical cancer and screening. All these factors influence the response to screening at individual, interpersonal and community levels. More community involvement is needed in the development and implementation of screening strategies to make the service accessible, acceptable and affordable to the communities and nations.

1.0 Introduction

Cervical cancer is the fourth most common cancer among women worldwide with an estimated 570,000 new cases and 311, 000 deaths reported in 2018 (1), up from 528,000 new cases and 266,000 deaths reported in 2012 (2). The bulk of the global burden rests with Africa, Latin America, the Caribbean and Asia where approximately 90% of deaths occur (3). With an estimated population of 372.2 million women aged 15 years

and older who are at risk of developing cervical cancer in Africa, 119,284 women are diagnosed with cervical cancer while 81,687 die from the disease every year (4). Compared to other regions in the world, Africa has higher cervical cancer incidence and mortality rates (1,3,5). Cervical cancer screening can reduce the incidence of the disease by 70-80% if targeted appropriately (6,7). However, in many parts of Africa, the disease is often not identified until it reaches advanced stages that are associated with poor outcomes (8). This is attributed to lack of comprehensive cervical cancer screening programmes in most countries (5). Cervical cancer is the most preventable cancer due to its slow progression and early identifiable precancerous lesions which can be treated before they progress to cancer (9) hence, women need not die from cervical cancer.

Primary studies have been conducted over the past decades to identify barriers to the uptake of cervical cancer screening in various African countries. Although limited, systematic reviews have also been done to look into challenges which women encounter in accessing cervical cancer screening services in Sub-Saharan Africa (SSA) (10,11). Despite the recommendations that have been made for overcoming the existing barriers, evidence suggests that cervical cancer rates continue to increase in Africa while declining in many developed countries (1). A richer understanding of the reasons for poor utilisation of cervical cancer screening programmes in Africa requires further exploration. This review therefore aimed at identifying the unique contextual circumstances that contribute to the increase in cervical cancer cases in many parts of Africa. Guided by the socio-ecological framework adopted from Kaufman and colleagues (12), our systematic review extends the knowledge already available from earlier studies and additionally investigates barriers affecting the whole continent and not just SSA. Findings should guide restructuring of cervical cancer screening policies and guidelines for implementation of proactive context-specific interventions that should address the health system, societal, socio-economic and cultural factors at a broader level to overcome screening barriers. This could improve the uptake of screening and subsequently reduce the high cervical cancer morbidity and mortality rates in Africa, whilst identifying gaps for future research and regionally specific studies to be explored.

2.0 Methods

This study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (13).

2.1 Search strategy

We subjectively and iteratively developed a comprehensive set of search terms. In the first instance, we checked Medline (PubMed) to identify controlled vocabulary Medical Subject Headings (MeSH) terms related to cervical cancer, and additionally identified key text words based on our knowledge of the field. This yielded three key concepts; cervical cancer, screening (irrespective of screening method), and Africa. The term 'barrier' was not used because the concept can be described in many different ways, and we did not want to risk missing some relevant papers. Medline search terms for other electronic databases were modified to conform to their search functions. Medline (PubMed), Embase (OVID), CINAHL (EbsCOHost), Scopus,

African Index Medicus, and Africa-wide information (EbsCOHost) electronic bibliographic databases were searched for articles published until May 2019 without language and study design limits. The 'related citations' search key in PubMed was further used to identify similar papers. Reference lists of potentially relevant articles were checked manually for additional citations. A detailed search history with terminology specific to each database is included (Supplementary file 1).

2.2 Selection criteria

This systematic review included studies on individual, interpersonal, community and health system related factors that prevent women from cervical cancer screening attendance in African countries. The selection criteria were based on the included original quantitative and qualitative studies on women of childbearing age conducted at health facility, community, or outreach settings that reported barriers from women and health providers' perspectives. Studies on women receiving treatment for cervical cancer were not included in the systematic review. We did not include studies specifically focused on sub-groups of women at higher risk of Human Papilloma Virus (HPV) infection such as those with the Human Immune Virus (HIV) since screening challenges restricted to specific demographic groups could be unrepresentative of the study population (14). Gray literature or unpublished study results were excluded. Studies in which only conference abstracts were available, but not the full articles, were also excluded from the systematic review. The justification for the exclusion is that these are not peer reviewed, and may therefore be less scientifically rigorous than those that are peer reviewed and published (15).

2.3 Outcome definitions

Our systematic review was grounded on the adopted socio-ecological framework by Kaufman and colleagues which describes the interplay between multiple levels of influence on individual behaviours for the promotion of health (12). The model suggests that a health outcome is determined by individual, interpersonal, institutional, community and structural factors (16). 'Barriers' were defined as any factors that prevent women from accessing cervical cancer screening from any level of the socio-ecological framework and classified into four areas as follows:

Individual level barriers: These are factors at the micro-level which include personal perceptions, knowledge, beliefs and emotions.

Interpersonal barriers: These arise from influences from spouse, family and other social networks.

Community level barriers: These are a result of influences at higher levels which include traditional and cultural norms, religious beliefs and stigma.

Health system related barriers: These are factors within the health system related to policies, resources and service delivery.

2.4 Screening

Mendeley reference manager was used to save, and view titles and abstracts of all articles retrieved from the electronic databases and to detect duplicates. Two independent reviewers screened the 2 365 titles and abstracts of studies obtained through database searches. Two additional articles were identified from references after reading the full text articles (n = 2 367). Screening of articles excluded duplicates (n = 65), studies not relevant to the topic (n = 2 248), and abstracts for poster and conference presentations whose full articles were not available (n = 13). The remaining 41 articles were reviewed in full text and an additional 17 studies excluded with reasons given for their exclusion. The screening process resulted in the selection of 24 articles which met the eligibility criteria. Disagreements on inclusion of certain articles were resolved through discussion to reach a consensus (17). For example, during the selection process, the two reviewers discussed and agreed on including four studies on women's knowledge, attitudes and practices on cervical cancer screening although their focus was not on screening barriers (see Table 3). The selection process is shown in Figure 1.

IDENTIFICATIO

Records identified through database searches

(n = 2 365)

Additional records identified through review of References

(n = 2)

Duplicates

(n = 65)

.
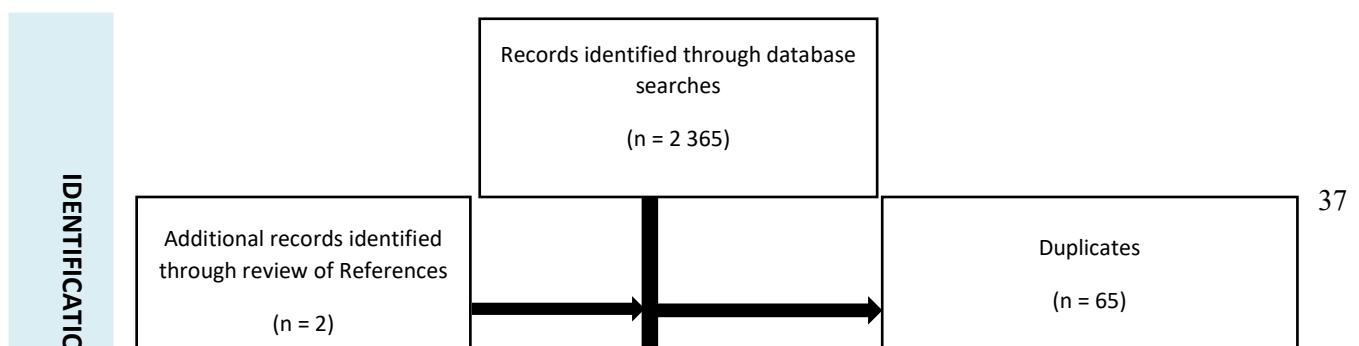
Figure 6: Flow chart for inclusion of studies

2.5 Quality assessment

The quality of each study was evaluated by two independent reviewers using the standard quality assessment criteria for evaluating primary research papers adapted from Kmet and colleagues (18). A checklist specific to each research method asked the reviewer to select either; 'yes' or 'no' to questions focusing on the methodological aspects of each article. This tool was appropriate for assessing the quality of the overall body

of evidence given in the heterogeneous literature and helped to gauge the quality of each individual study against set standards. Qualitative studies were evaluated using the following criteria: question or objective clearly described, study design evident and appropriate, context for the study clear, connection to a theoretical framework or wider body of knowledge, sampling strategy described, relevant and justified, data collection methods clearly described and systematic, data analysis clearly described and systematic, and conclusion supported by results (18). Quantitative studies were assessed for the following aspects: question or objective sufficiently described, study design evident and appropriate, method of subject selection described and appropriate, subject characteristics sufficiently described, sample size appropriate, analytic methods described, justified and appropriate, results reported in sufficient detail, and conclusions supported by the results (18). The quality of studies which used the mixed methods approach was rated under the method which was mentioned first in that particular study.

To further determine the overall risk of bias and the quality of evidence, each reviewed article was given a quality of low, medium or high to inform the decision making. Each quality component was rated 0 to 2 based on the reviewer's subjective assessment, with a possible least score of 0, and maximum score of 16. A sum score of the quality components gave the overall quality rating of each article. A score of 0-8 was rated as low, 9-12 as medium and 13-16 as high. For a study to be included, it had to attain a minimum rating of medium. All the included studies fulfilled this requirement. Quality assessment for the qualitative studies is presented in Table 1 whilst that of the quantitative studies is presented in Table 2.

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Table 6: Quality assessment of qualitative studies

Article	Standard quality assessment criteria for evaluating primary research papers (Kmet at al, 2004)								
	Question or objectives clearly described	Study design evident and appropriate	Context of study clear	Connection to a theoretical framework or wider body of knowledge	Sampling strategy described, relevant and justified	Data collection methods clearly described and systematic	Data analysis clearly described and systematic	Conclusion supported by results	Total score / Quality rating
Ndikom et al (2012)	2	1	2	2	2	2	2	2	15 High
Mookeng et al (2010)	2	2	2	2	2	2	2	2	16 High
Munthali et al (2015)	2	1	2	2	1	1	2	2	13 High
Oketch et al (2019)	2	2	2	2	2	2	2	2	16 High
Mwaka et al (2013)	2	1	2	2	2	2	2	2	15 High
Ndejjo et al (2017)	2	2	2	2	2	2	2	2	16 High
Modibbo et al (2016)	2	1	2	2	2	2	2	2	15 High
Fort et al (2011)	2	1	2	2	2	2	1	2	14 High
Mangoma et al (2006)	2	2	2	2	2	2	2	2	16 High
Ngugi et al (2011)	2	1	2	1	2	2	1	2	13 High

40

Table 7: Quality assessment of quantitative studies

Article	Standard quality assessment criteria for evaluating primary research papers (Kmet at al, 2004)								
	Question or objectives clearly described	Study design evident and appropriate	Method of subject selection described and appropriate	Subject characteristics sufficiently described	Sample size appropriate	Analytic methods described, justified and appropriate	Results described in sufficient detail	Conclusions supported by results	Total Score
Nwankwo et al (2011)	2	2	1	2	0	1	2	2	12 Medium
Compaore et al (2016)	2	2	1	2	1	2	2	2	14 High
Tarwireyi (2005)	2	2	2	2	0	1	2	2	13 High
Kress et al (2015)	2	1	2	2	1	2	2	2	14 High
Obiodun et al (2013)	2	2	2	0	2	1	1	2	12 Medium
Okunowo et al (2018)	2	2	2	2	2	2	2	2	16 High
Perng et al (2013)	2	1	1	1	1	2	1	1	10 Medium
Ebu et al (2015)	2	2	2	2	2	2	2	2	16 High
Rosser et al (2015)	2	1	2	2	2	2	2	2	15 High
Chigbu et al (2011)	2	2	2	2	1	2	2	2	15 High
Titiloye et al (2017)	2	2	2	2	2	2	2	2	16 High
Ibekwe et al (2011)	2	2	2	2	2	2	2	2	16 High
Obiodun et al (2013)	2	2	2	2	2	1	2	2	15 High
Getachew et al (2019)	2	2	2	2	2	2	2	2	16 High

2.6 Data extraction, synthesis and analysis

A data extraction sheet was developed using the following predetermined data fields: first author, country and year of publication, title, research and data collection methods, sampling technique and sample size and barriers identified for cervical cancer screening. One reviewer extracted the data while a second cross checked the extracted data for accuracy. A narrative review of quantitative studies was done. This was informed by the variation in the research methodologies used between studies and the multifaceted dimensions of screening barriers given in the studies (17). Data were summarised in descriptive form. A profile of all the studies included in the review highlighting the major screening barriers identified is given in Table 3.

Table 3: Profile of included studies showing key findings

Author, year, country	Title	Research method and data collection	Sampling technique Sample size	Major barriers identified
Ndikom CM & Ofi BA., 2012, Nigeria	Awareness, perception and factors affecting utilization of cervical cancer screening services in Ibadan, Nigeria: A qualitative study	**Research method:** Qualitative **Data collection:** Focus Group Discussions (FGDs)	Purposive 8 FGDs (n = 82)	Lack of awareness of cervical cancer and facilities for screening Low risk perception Illiteracy (belief that services are for rich people) Financial constraints Fear of having a positive result Attitude of indifference to their health Having many contending issues (too busy) Screening services not easily accessible Poor information dissemination by health workers
Mookeng, M J et al., 2010, South Africa	Barriers to cervical cancer screening within private medical practitioners in Soshanguve, South Africa	**Research method:** Qualitative **Data collection:** Interviews Field notes	Purposive n = 6	Age of medical practitioner vs. age of woman Gender of medical practitioner Few opportunities for medical practitioners to conduct screening tests Failure of medical practitioners to inform patients Financial constraints for patients who pay cash
Munthali, A C et al., 2015, Malawi	Exploring barriers to the delivery of cervical cancer screening and early treatment services in Malawi: Some views from service providers	**Research method:** Qualitative **Data collection:** In-depth interviews	Not indicated n= 53	Lack of knowledge about cervical cancer among the general population Long distances to health facilities Services not offered on a daily basis Lack of spousal involvement Misconceptions about cervical cancer Gross shortage of staff Lack of equipment and supplies Lack of supportive supervision Gender and age of service providers
Oketch, S Y et al., 2019, Kenya	Perspectives of women participating in a cervical cancer screening campaign with community-based HPV self-sampling in rural western Kenya: a qualitative study	**Research method:** Qualitative **Data collection:** In-depth interviews	Purposive n = 120	Social stigma associated with cervical cancer Long distance to screening sites (travel costs and travel time) Fear of pain during screening Embarrassment if male providers provided screening Fear of disease and death
Mwaka, A D et al., 2013, Uganda	Mind the gaps: a qualitative study of perceptions of healthcare	**Research method:** Qualitative **Data collection:** Key informant interviews (KIIs)	Purposive n = 15	Lack of awareness and knowledge about cervical cancer and service locations Lack of knowledge about the benefits of screening Lack of accurate knowledge of cervical cancer Financial constraints (screening costs)

				Discomfort with exposure of women's genitals Perceived pain during pelvic examinations Lack of spousal support (emotional & financial) Few health facilities that provide screening Long distances to screening centers Lack of transport to screening centers Gender and age of service provider
Ndejjo, R et al., 2017, Uganda	Knowledge, facilitators and barriers to cervical cancer screening among women in Uganda: a qualitative study	**Research method:** Qualitative **Data collection:** FGDs KIIs	Multistage (Random selection of sub counties and purposive selection of villages and participants) 10 FGDs (n = 119) KII (n = 11)	Lack of knowledge about cervical cancer and screening Lack of awareness about screening services availability Lack of facilities offering screening- services far away from the community Negative staff attitudes Staff shortages Lack of proper training to conduct screening Lack of screening materials Fear of discomfort during screening Gender and age of service provider Fear of a positive diagnosis Fear of finding out HIV status if provided with screening Financial constraints (transport, screening and treatment costs if found positive)
Modibbo, FI et al., 2016, Nigeria	Qualitative study of barriers to cervical cancer screening among Nigerian women	**Research method:** Qualitative **Data collection:** FGDs	Purposive 4 FGDs (n = 49)	Lack of awareness of screening programmes Modesty concerns Gender of health care provider Fear of a positive result and disclosure of the results Fear of contacting other illnesses in the hospitals Discomfort during the screening process Denial of disease condition Discrimination (Islam women from their mode of dressing) Lack of husband's permission for screening
Fort, VK et al., 2011, Malawi	Barriers to cervical cancer screening in Mulanje, Malawi: a qualitative study	**Research method:** Qualitative **Data collection:** Interviews	Systematic n = 20	Low knowledge about cervical cancer and screening Misconceptions about screening (pulling out uterus) Fatalistic view of cervical cancer (fear of being diagnosed and dying soon) Low perceived risk Lack of time (too busy with household chores) Difficulty in navigating health care facilities Financial constraints (transportation and time) Long waiting times Lack of understanding on benefits of screening
Nwankwo, K C et al., 2011, Nigeria	Knowledge attitudes and practices of cervical cancer	**Research method:** Quantitative **Data collection:**	Convenience	Lack of knowledge about cervical cancer screening No complaint Cannot afford the cost

	screening among urban and rural Nigerian women: a call for education and mass screening	Interviewer-administered questionnaire	n = 1000	Cannot locate screening facility Screening is unnecessary Fear of a cancer diagnosis Never thought about it
Compaore, S et al., 2016, Burkina Faso	Barriers to Cervical Cancer Screening in Burkina Faso: Needs for Patient and Professional Education	**Research method:** Quantitative **Data collection:** Interviewer-administered questionnaire	Convenience n = 351	Lack of awareness about cervical cancer and screening Low risk perception Not knowing where to go for screening Fear of being diagnosed with cervical cancer Long distance to screening site Financial constraints
Tarwireyi, F., 2005, Zimbabwe	Perceptions and barriers to cervical cancer screening in a rural district of Mutoko, Mashonaland East Province, Zimbabwe	**Research method:** Quantitative **Data collection:** Interviews – not explained if this was an interviewer administered questionnaire	Multi-stage random n = 1 600	Lack of screening services at the nearest health centers Not yet ready for screening Lack of time Financial constraints – high transport costs Lack of knowledge of where to go for screening Long distance to health center Lack of proper policy to guide cervical cancer screening
Kress, C M et al., 2015, Ethiopia	Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers	**Research method:** Quantitative **Data collection:** Self-administered multiple choice surveys	Purposive n = 335	Lack of necessary training to screen Lack of equipment and supplies for screening Lack of laboratory resources Screening tests too expensive to patients Difficulty to follow up with patients after screening
Abiodun, OA et al., 2013, Nigeria	The understanding and perception of service providers about the community-based cervical screening in Nigeria	**Research method:** Quantitative **Data collection:** Self-administered questionnaire	Purposive n = 100	Low patient turnout due to a generally low level of awareness of cervical cancer and screening among the populace Lack of clear and comprehensive national cervical cancer management guidelines and policies in the region Lack of sustainability of screening service due to staff turnover Shortage of funds Inadequate consumables Shortage of skilled personnel Absence of budgetary allocation for cervical screening Lack of commitment by health personnel due to poor motivation Lack of hospital management and government support: women fail to get the service
Okunowo, AA et al., 2018, Nigeria	Women's knowledge of cervical cancer and uptake of Pap smear testing and the factors	**Research method:** Quantitative **Data collection:**	Convenience n = 144	Poor knowledge of cervical cancer My doctor has never advised me to do the test Poor knowledge about screening Low risk perception

	influencing it in a Nigerian tertiary hospital	self-administered structured questionnaire		Lack of knowledge of where the test is done
Perng, P et al., 2013, Tanzania	Promoters of and barriers to cervical cancer screening in a rural setting in Tanzania	**Research method:** Quantitative **Data collection:** Interviewer- administered questionnaire	Convenience quota sampling n = 300	Financial constraints (when cost barriers are removed, women who are less able to afford health care are more likely to participate) Perceived absence of ill health Age (younger and older women least likely to screen) Illiteracy
Ebu, N I et al., 2015, Ghana	Knowledge, practice, and barriers toward cervical cancer screening in Elmina, southern Ghana	**Research method:** Quantitative **Data collection:** Structured interview schedule	Multistage random n = 392	Lack of screening sites Screening sites too far away Limited information on cervical cancer Absence of health education programmes Lack of adequate knowledge about the screening test and where it can be done Screening test is embarrassing and painful Religious values and cultural beliefs Lack of spousal support Low risk perception Fear of a cancer diagnosis and treatment Financial constraints (cost of the test unaffordable)
Rosser, J I et al., 2015, Kenya	Barriers to Cervical Cancer Screening in Rural Kenya: Perspectives from a Provider Survey	**Research method:** Quantitative **Data collection:** Self-administered survey	Purposive n = 106	Staff shortages Lack of trained staff Insufficient space Insufficient supplies Inadequate knowledge of cervical cancer Long waiting times Gender of service provider Fear of pain with the speculum exam
Chigbu, C O & Aniebue, U., 2011, Nigeria	Why southeastern Nigerian women who are aware of cervical cancer screening do not go for cervical cancer screening	**Research method:** Quantitative **Data collection:** Interviewer- administered questionnaire	Systematic sampling n = 3 712	Lack of adequate information Absence of symptoms Fear of violation of privacy Fear of outcome of results No family history of cervical cancer Distance to screening centers
Titiloye, M A et al., 2017, Nigeria	Barriers to utilization of cervical cancer screening services among women of reproductive age in Ondo, Southwest Nigeria	**Research method:** Quantitative **Data collection:** Interviewer- administered questionnaire	Multi-stage n = 244	Fear of result Negative attitudes of health workers Husband's influence on decision Screening procedure is painful Financial constraints (too expensive) Screening test not readily available Lack of knowledge on what age it is appropriate to go for screening Long distance to health facility

				Lack of time to get screened because it takes much time Health facility screening operational times not convenient Misconceptions about screening
Abiodun, OA., et al 2013, Nigeria	An assessment of women's awareness and knowledge about cervical cancer and screening in Ogun State, Nigeria	**Research method:** Quantitative **Data collection:** Interviewer-administered questionnaire	Multi-stage random n = 2 000	Lack of awareness and knowledge on cervical cancer Lack of awareness and knowledge on cervical cancer screening Lack of interest Lack of access to screening
Ibekwe, CM et al., 2011, Botswana	Perceived barriers of cervical cancer screening among women attending Mahalapye hospital, Botswana	**Research method:** Quantitative **Data collection:** Self- administered questionnaire for those who could read and write Interviewer administered questionnaire for those who could not read or write	Convenience n = 300	Lack of information about the benefits of screening Low risk perception for cervical cancer
Mangoma, J F et al, 2006, Zimbabwe	An assessment of rural women's knowledge, constraints and perceptions on cervical cancer screening: the case of two districts in Zimbabwe	**Research method:** Mixed - Quantitative and Qualitative **Data collection:** <u>Quantitative</u> Interviewer administered questionnaire <u>Qualitative</u> Semi-structured questionnaires to nurses & nurse aides In-depth interviews with health personnel FGDs with women Document analysis Narratives from 2 women suffering from cervical cancer & 1 who had hysterectomy	<u>Quantitative</u> Cluster random n = 356 <u>Qualitative</u> Purposive n = 29 n = 16 20 FGDs Hospital and clinical records n = 3	Lack of knowledge about the need for and importance of screening Lack of awareness about the local screening programme Gender of service provider Discomfort during screening procedure (lying on one's back with legs open) Low level of knowledge and understanding about cervical cancer Absence of signs and symptoms Lack of money Men not understanding the importance of screening Absence of a screening programme Long distances to nearest screening sites Lack of trained nurses Lack of follow up (women referred for screening do not go because of lack of money, time and not understanding the consequences of the disease) Competing priorities (bread and butter issues) Misconceptions about cervical cancer (caused by witchcraft)

47

| Ngugi, C W et al., 2012, Kenya | Factors affecting uptake of cervical cancer early detection measures among women in Thika, Kenya | **Research method:** Mixed - Quantitative and Qualitative
 Data collection:
 Quantitative
 Interviewer-administered questionnaire
 Qualitative
 In-depth interviews | Not explained

 Quantitative <br> n = 498

 Qualitative <br> n = 50 | Lack of knowledge and awareness of cervical cancer and the benefits of screening
 Screening sites too far away
 Financial constraints (screening, treatment and transport costs)
 Fear of pain during the procedure
 Responsibility in the home (too busy with other household work and time spent at hospital is too long)
 Lack of spousal support
 Health workers not supportive of the programme (too busy even if women ask to be screened, no explanation of procedure before the test, rude to patients)
 Gender of service provider |
| Getachew, S et al., 2019, Ethiopia | Cervical cancer screening knowledge and barriers among women in Addis Ababa, Ethiopia | **Research method:** Mixed - Quantitative and Qualitative
 Data collection:
 Quantitative
 Interviewer-administered questionnaire
 Qualitative
 FGDs | Quantitative
 Multi-stage <br> n = 520
 Qualitative
 Purposive
 4 FGDs (n = 37) | Lack of symptoms
 Lack of knowledge regarding cervical cancer
 Lack of adequate information about the existence of screening, who is eligible for screening, where and when they should be screened
 Lack of screening services at the nearest health centers
 Health professionals do not promote screening |

3.0 Results

3.1 Study characteristics

The key characteristics and findings of the 24 included articles are summarised in Table 3. The studies were published between 2005 and 2019. Eight were conducted in Nigeria, three in Kenya, two each in Uganda, Ethiopia, Malawi and Zimbabwe and one each in South Africa, Burkina Faso, Tanzania, Ghana and Botswana. Eight (33.3%) studies were qualitative, thirteen (54.2%) quantitative and three (12.5%) used the mixed method approach. Sixteen (66.7%) studies evaluated barriers to cervical cancer screening from the perspective of women who are the recipients of screening and six (25%) from the perspective of health service providers. Two (8.3%) evaluated the barriers from the perspective of both women and health service providers.

3.2 Qualitative studies

Purposive sampling was used in the majority of qualitative studies (6/8, 75%). For data collection, two studies each used In-depth interviews (25%) and FGDs (25%) respectively. The remaining four each used KIIs (12.5%), interviews (12.5%), a combination of FGDs and KIIs (12.5%) and a combination of interviews and field notes (12.5) respectively.

3.3 Quantitative studies

Of the 13 quantitative studies, 5 (38.5%) used convenience sampling. Multi-stage random sampling was used in 4 (30.8%), purposive sampling in 3 (23.1%) and systematic sampling in 1 (7.7%) study. Interviewer-administered questionnaires were used for data collection in 8 (61.5%) studies and self-administered nquestionnaires in four (30.8%). One (7.7%) study used both self and interviewer-administered questionnaires depending on whether the participant could read and write or not. The sample size of the studies ranged from 100 to 3 712 participants.

3.4 Mixed methods studies

All three studies which employed both the qualitative and quantitative approaches used the interviewer-administered questionnaire for the collection of quantitative data. For the qualitative component, in-depth interviews and FGDs were each used in two studies, respectively. The third study used document analysis, FGDs, in-depth interviews and narratives from two women with a diagnosis of cervical cancer and one who had hysterectomy done. Finding from the narratives were not used in this systematic review as they were obtained from participants who did not meet the eligibility criteria for inclusion.

3.5 Barriers for cervical cancer screening

Overall, 28 cervical cancer screening barriers were identified from the perspective of service recipients and 10 from the perspective of service providers. The main barriers as perceived by women included; inaccessibility

of screening services, lack of awareness and/or knowledge about cervical cancer and screening including its benefits; financial constraints, fear of the outcome and socio-cultural factors. Service providers perceived lack of the necessary training to conduct screening, lack of equipment and supplies, staff shortages and gender and age of the health practitioner as major barriers to service provision.

3.6 Thematic analysis of barriers to cervical cancer screening encountered by women in Africa

The identified barriers were grouped and coded into four main themes; health system related barriers, individual level barriers, interpersonal barriers and community related barriers.

3.6.1 Health system related barriers to cervical cancer screening

3.6.1.1 Inaccessibility of screening services

Lack of access to screening services was the most cited barrier to screening. Women maintained that screening services were not available at their local health facilities (19–26). The long distances they had to travel to reach the nearest screening sites usually located at tertiary levels of health care, were a deterrent to screening (20–22,24,27–30). This had financial implications in terms of transport costs and time lost. Some women expressed that the screening facilities' operational times were not amenable with their schedules which posed a challenge and limited their chances of screening (22). Those who had physical access to screening facilities found it difficult to navigate their way to the right place as information and directions were not readily available (31). Service providers concurred that health facilities that provide screening were few (32) and far away from communities (19). This resulted in women having to travel long distances to get screened, while not all facilities offered the service on a daily basis (33). Transport to get to screening centers was also a challenge (32). Access to screening is thus affected by unavailability of local screening facilities, transport and screening operating times which are not user-friendly.

3.6.1.2 Economic constraints

Lack of budgetary allocation for cervical cancer screening due to shortage of funds was highlighted by service providers as a barrier to screen since it resulted in insufficiency of all resources necessary for screening (34). This includes space where cervical cancer services can be effectively delivered (33,35) and technical support to monitor the programme and provide guidance to service providers (33,34). Service providers had challenges in following up patients after screening which defeated the purpose of screening (24,36).

3.6.1.3 Lack of skilled providers

Service providers maintain that staff shortages are a major hindrance to cervical cancer screening as only a few members of staff are involved in the delivery of the service (19,33–35). There is a lack of trained health personnel to meet the demand for screening (24,33,35). This is attributed to the high staff turnover of those trained (34) and lack of proper training to enable available nurses and doctors to conduct screening (36). Some trained providers are assigned to service areas not related to screening, thus negatively affecting delivery of

screening services (33,34). At some health facilities, the same personnel who provide screening also provide other maternal and child health services and this increases their workload (33). The time within which screening sites are operational is hence limited. This has an impact on the number of women who can be screened since women have to wait for the availability of the few skilled staff to access the service.

3.6.1.4 Lack of equipment and supplies

A general shortage of screening materials and equipment was identified by service providers as a barrier to screening (19,20,33–36). Facilities often run out of supplies and cryotherapy is sometimes not provided because equipment is broken down and cannot be repaired due to lack of funds (33).

3.6.1.5 Negative attitudes of service providers

Four studies; three (19,22,25) from the perspective of women and one (34) from the service providers' perspective highlighted negative attitudes of service providers as an important reason for women not to seek cervical cancer screening. Women report that health workers are uncooperative and hostile to them. Such inappropriate behaviour leaves them no option but to consult traditional healers for health care (19). When women request screening, health workers allege to be too busy, and if the service is provided, no explanation of the screening procedure is given (25). Service providers argue that they lack commitment to provide the service due to poor motivation. This deprives women access to the screening services which they need (34).

3.6.2 Individual level barriers to cervical cancer screening

3.6.2.1 Lack of access to screening information

Women generally lacked awareness of cervical cancer (27,29). Those who may have heard about the disease lacked or had inadequate knowledge on its risk factors, prevention and signs and symptoms (19,21,23–26,31,37). Service providers attribute low uptake of screening by women to their lack of, or low levels of awareness about cervical cancer (32–34). This does not give women the motivation to seek screening. Women often have inadequate (35) and inaccurate (32) knowledge about cervical cancer. Consequently, women also lack awareness and knowledge or have limited information on screening (19,23,29–31,37,38). Specifically, women lack information about the existence of screening even when such services are available locally (24), are not aware of the location of screening sites (19–21,26,27,29,37,39), the appropriate age for screening (22,26), and the need and benefits of screening (24,25). This dearth of information has been attributed to poor information dissemination by health workers as attested by both service recipients (26,27,37) and service providers including the private practitioners (40), and absence of relevant health educational programmes (21). In addition, service providers highlighted that health professionals especially at the lower levels of care lacked adequate knowledge on cervical cancer and care and hence could not give women up to date information on screening (32).

3.6.2.2 Financial constraints

Lack of financial resources was reported as a common obstacle to participation in cervical cancer screening. The cost of the test was considered as expensive by some women (19,21,25,39) and service providers (32,36,40). This was partly related to some hidden costs associated with screening since the service is offered for free at most public health facilities. The indirect costs include high transport charges to screening sites (19,20,25,28,31), time lost on travel (28,31) and long waiting times before screening (20,31,35) which time could have been used productively and lack of money to pay for treatment should the screen test yield a positive result (32).

3.6.2.3 Attitude of indifference to screening

The belief that screening is unnecessary (39) and not important (27) was noted as an impediment to screening. Women see no benefit in early detection measures as they believe that one would not be cured anyway, and still die of cancer (25). Some women indicated that they have never thought about screening (39) and therefore were not ready for the test (20), or had no interest in getting screened (23). These negative attitudes could be emanating from their lack of symptoms (24,26,30,39,41) which inculcates a notion of good health and therefore finding no reason to be screened. Women also believed they were not at risk for cervical cancer (27,31,37,42), while some were not aware of their being at risk for the disease (29) and therefore felt no need for screening.

3.6.2.4 Fear of procedure and outcome

Fear of pain during the procedure was identified as a deterrent to screening (19,21,22,38). Women receive negative information from friends (25), or have themselves had bad screening experiences (19). Service providers also reported that women are not comfortable with pelvic examinations and fear that insertion of the speculum causes pain, hence will not participate in screening (32,35). For some women, fear of the possibility of receiving a positive result was a barrier (19,21,22,27–31,38). Finding bliss in ignorance was associated with; fear of being left by spouse if known to have cervical cancer as that was thought to interfere with sexual relations (19), fatalistic view of cervical cancer, therefore finding it better not to know (27–30,38), fear of disclosure of results which may result in stigmatisation (38), fear of the side effects of treatment (21) and worry which may lead to an early death (22). Women also expressed fear of contracting other diseases from the screening equipment and finding out their HIV status if HIV screening was provided with cervical cancer screening (19).

3.6.3 Interpersonal barriers to cervical cancer screening

3.6.3.1 Lack of spousal support

Spousal or male partner support was found to be an important factor in the practice of screening because of the patriarchal nature of the African society. Husbands have an influence on the decision for screening (22). Women require their husbands' permission to get screened for financial and cultural reasons (38). Some men do not understand the importance of screening (24) and subsequently refuse to give their consent (21). Women

are accused of being promiscuous if they express their wish to screen because of the association of cervical cancer with a sexually transmitted virus (25). Men can thus be a hindrance to screening. Service providers confirmed men's lack of emotional and financial support for screening (32) expressed by women (21,22,24,25). Lack of husband involvement in screening creates treatment adherence problems if the woman has a positive result (33).

3.6.3.2 Misconceptions about cervical cancer

Negative connotations linked to cervical cancer and screening within women's social circles are a big barrier to screening. The misconception that cervical cancer is associated with promiscuity deters women from screening as they do not want to be labelled as being promiscuous (22). Women are misinformed and made to believe that use of the speculum during the test enlarges the vagina (33), that the uterus is pulled out for examination and reinserted after screening (31,33), and that they may be unable to have children after screening. Subsequently, they get discouraged from using the service. Women's screening behaviour is thus often subject to the influence of family and friends.

3.6.4 Community-related barriers to cervical cancer screening

3.6.4.1 Family responsibilities

Six studies revealed that women lack time to attend screening due to family responsibilities. As household managers whom society expects to place the wellbeing of the family above theirs, women have many competing priorities related to family survival which deprive them of time for screening (24,27). They are too busy with household chores to go to health facilities for preventive health services (20,25,31) relative to curative care. Some have no household help and find it hard to leave their tasks unattended since the time it takes to complete the screening processes is long (22,25).

3.6.4.2 Socio-cultural and Religious beliefs

It is very difficult to clearly distinguish between cultural and religious considerations as these two are intricately related. The same factors reported by some women as religious were reported as cultural by others. Consequently, socio-cultural and religious beliefs and gender and age of service provider cannot be discussed independently of each other.

Some women consider participation in cervical cancer screening as inappropriate and against their cultural and religious beliefs (21). African women are generally conservative and suffer embarrassment at lying on their backs with their legs open (24,32) and exposing their private parts for examination (21,25,32), especially if it is a male providing the service (28). Exposure of genitals is viewed as a violation of women's privacy (30). The cultural and religious norms which some women value discourage them from exposing their intimate body parts to other people other than their husbands, unless if there are compelling reasons (38). Modesty, embarrassment and religious beliefs are thus significant barriers to utilisation of screening services.

Gender and age of the service provider were seen to pose a cultural barrier to participation in cervical cancer screening programmes. Women feel ashamed, shy, embarrassed, anxious and uncomfortable if males provide the service (19,24,25,38). Service providers echoed that gender of the provider interfered with screening programmes as women do not like their private parts exposed to male practitioners particularly if they have no gynaecological problems (32,33,35,40). Furthermore, older women are not willing to be screened by younger male health workers who they consider as their sons (19,24,32,33,40). This is attributed to cultural norms. The same sentiments in relation to gender and age of service provider are obtaining in the private sector (40).

3.6.4.3 Social stigma associated with cervical cancer and screening

One study revealed that women decline cervical cancer screening because of the stigma associated with having cervical cancer (28). They avoid going to the screening sites because people may think they have the disease and suffer societal rejection. Stigma related to misconceptions was again mentioned by service providers as one of the perceived patient factors that inhibit screening uptake (35).

3.6.5 Structural barriers

Over and above the health system, individual, interpersonal and community related barriers to screening, clear comprehensive cervical cancer management policies and guidelines to guide cervical cancer screening and systematic cervical cancer screening programmes are not readily available in the region (20,24,34). Efforts to prevent cervical cancer are therefore haphazard and this has a negative impact on screening (24). Where available, the policies are weak and characterised by a lack of political will and backing by governments. Inadequate funding of the programme results in poor availability of all resources necessary for screening due to the low priority which cervical cancer screening is given within the health system (34).

Women and health service providers mutually suggest that; increasing access to cervical cancer screening within communities to address transport challenges (19), creating and raising awareness on screening through community mobilisation and sensitisation (19,24,33), assigning female staff to conduct screening (19), availing more skilled staff and supplies for the screening programme, and a collaborative approach at crafting policies that accord screening priority like other maternal and child health programmes (21), would improve the uptake of screening.

4.0 Discussion

This systematic review explored the key barriers to the uptake of cervical cancer screening and identified 24 studies conducted in 11 African countries from 2 365 potential studies. There were no studies identified from North and Central Africa. The barriers were presented from the viewpoint of service recipients and providers. Four major themes emerged from the analysis of the articles which enabled the barriers to be classified as; health system related, individual level, interpersonal and community related. Concordance of themes was noted from the findings of qualitative and quantitative studies, and between women and service providers' perspectives. Triangulation of findings was thus achieved (43).

Based on the findings of this review, factors that negatively impact cervical cancer screening in Africa are multidimensional and although common between countries, vary from one setting to another. At the level of the health system, restricted access to screening, in particular; lack of local health facilities that provide screening services, prohibitive distances and cost to screening sites and inconvenient clinic operating times, were shown to be the biggest challenges to the uptake of screening among included studies. The findings compare well with other studies conducted among indigenous populations worldwide (7), in Sub-Saharan Africa (10), in the Pacific (44) and in other low- and middle-income countries such as Turkey, China, Thailand and Jamaica (45). The implication is that even if all other barriers are addressed, screening incidence will still be low if screening facilities are inadequate for the communities. It should however be noted that cervical cancer disproportionately affects resource constrained populations. This is evidenced by effective screening services in high-income countries that have resulted in low cervical cancer incidence (46).

Access to services is central to the screening programme as women cannot engage in cervical cancer screening if there are no services to deliver it (44). This calls for development of context specific innovative strategies, or modification of existing ones to make the service readily accessible to all women who need it. One long term solution although with financial implications, is the universal integration of cervical cancer prevention into the nurses' pre-service training curriculum (44,47). This is because nurses constitute the most authoritative source of health information, especially for women (48) and are available at all levels of health care. The training would make use of already existing resources since all teaching hospitals are likely to have screening units. Screening coverage would consequently be ensured at all levels of health care given the availability of the other necessary resources, which may however not be readily available although women would benefit from receiving accurate information on cervical cancer and screening to enable them to seek services.

The World Health Organization has also provided guidelines on attainment of universal screening coverage, its scalability and sustainability (49), which countries can modify and implement. Furthermore, WHO postulates that the success of the drive to eliminate cervical cancer depends on political will and country-led action investments (50). This is particularly required in African countries for the economic support of cervical cancer screening programmes and development or effective implementation of country centric policies and guidelines for screening. Nevertheless, individual and other factors within the socio-ecological model still need to be addressed given that some low resource countries in Africa with a strong political will still report low screening rates (51). Considering alternative screening delivery models like mobile clinics is another viable option that has proven to be effective in other low resource settings (47). Contextual innovation is required in relation to increasing the times at which screening services are available to potential users.

Lack of awareness and knowledge about cervical cancer and screening was commonly reported in this review although not identified as the primary barrier to screening, contrary to findings from previously conducted reviews (9,10,14,44,45,52). This variance could be a result of on-going awareness campaigns and improved education of women about the disease and its prevention which could be an indication that knowledge about cervical cancer and screening is progressively improving. The limited knowledge that women have on cervical

cancer and screening has been linked to failure by health professionals to educate their communities appropriately.

A number of studies conducted in similar settings have reported similar findings (9,11,44). Effective health education is likely to improve women's knowledge about the disease and enhance the uptake of screening (16,37). Establishment of systems for continuing knowledge and skills training of health professionals in cervical cancer prevention could help in the scaling up of screening coverage. More opportunities for the education of communities including men need to be explored in a culturally competent manner using affordable and available resources. Community Health Workers (CHWs) for example, possess authority and influence and are respected in their communities. Such authoritative sources of cultural knowledge could be harnessed and trained to complement the efforts of health professionals in disseminating cervical cancer screening knowledge.

A clearer understanding and increased knowledge among women could dispel myths and misconceptions about cervical cancer and screening and could result in an increased demand for the service. For women to participate in screening, they need to have knowledge of the disease and how it is screened (44). As stated by some women; "it is not possible to use what they don't know about" (27).

Our review identified that at the interpersonal and community levels of the socio - ecological model, women are essentially constrained from screening by cultural and religious factors. This finding is consistent with other studies which attest that women need to seek approval and funding from their spouses/partners to enable them to access cervical cancer screening (16). Such approval is at times denied for varying reasons (11,14,45,53). Moreover, women are also reticent to discuss reproductive health issues with their spouses for cultural reasons (47), while husbands are not expected to be involved in talking about women's health issues (11,54).

The provision of screening services by males has been seen to discourage women, particularly the older ones, from seeking screening. Findings of this review are congruent with evidence from other studies (16,53,55,56). For some women, exposing their nudity to males other than their husbands is against their religious beliefs and values (10). Furthermore, some studies conducted among minority groups in Canada revealed that women felt uncomfortable discussing or undertaking the screening test irrespective of the sex of the service provider as a result of cultural and religious influences (9).

However, despite these religious taboos and social stigmas associated with screening, women still respect health providers' opinions and recommendations (9). This reiterates the critical role health workers have in educating women on cervical cancer and screening at every available opportunity for enhanced utilisation of screening services. Evidently, there is a need to change some socio-cultural beliefs if uptake of screening is to increase. This however is a challenging task since women's understanding of issues is grounded on religious and cultural traditions. This makes promotion of screening difficult to address in isolation to those traditions (14). Accordingly, a simple educational intervention is unlikely to achieve the desired result. Rather than

targeting just the women with cervical cancer screening messages, educational interventions should be extended to include families and communities and traditional/religious leaders who could serve as change agents in support of promotive and preventive health programmes including cervical cancer screening.

5.0 Limitations

Although the search strategy was tailored for studies conducted in Africa and the review necessary to integrate findings on barriers to screening of the whole African continent, this was not achievable as no articles were retrieved from North and Central African countries hence; screening barriers unique to those countries were not explored. While evidence suggests that cervical cancer is uncommon in Northern Africa (3) which could be the reason for lack of research in that area, findings of this review exclude an important segment of the study population which could be having unique barriers to cervical cancer screening. This gap needs to be filled given the prevalence of cervical cancer in these other countries. Despite this limitation, the overall findings on cervical cancer screening barriers were consistent across the studies.

6.0 Conclusions

Poor access to screening, lack of comprehensive knowledge on cervical cancer and screening and socio-cultural influences are the key barriers to the uptake of cervical cancer screening among women in African countries. From the view of health personnel, trained service providers are too few to meet the demand for screening and screening equipment and supplies are inadequate for delivery of a comprehensive service. Women may have the essential knowledge on cervical cancer and get the motivation to screen but fail to do so if the service is inaccessible to them for various reasons. Women who have full understanding of the role of screening and are able to access it may still fail to utilise the service if they find it unacceptable due to intrapersonal and community influences related to religion and culture, and health system limitations.

Success at achieving a high uptake of screening should therefore focus on addressing all screening barriers at the individual, interpersonal, community and health systems levels concurrently using the primary health care model. This approach advocates for the availability, accessibility, acceptability and affordability of services with full community participation which could work to change the traditional thinking and attitudes of women and communities towards screening (57). Guided by the WHO building blocks that promote planning for effective and efficient use of finances, an appropriately skilled health workforce in adequate numbers, availability of medical products and effective information systems supported by good governance and an integration of community roles to deliver an accessible, acceptable and affordable screening service, governments need to strive towards strengthening their health systems (58). Such strategies could bring solutions towards reducing screening barriers that are responsive to communities and health services' needs while within the capacity of the African countries' national budgets. Our review provides important insights into the need for long-term continuing strategies to reduce screening barriers at all levels of the socio-

ecological model based on the needs of the community to achieve and sustain high screening rates. Further research is required to investigate the feasibility and cost effectiveness of this multifaceted approach.

7.0. Declarations

Conflict of interest

The authors declare no conflict of interest.

Author contributions

Conceptualised the review and developed the systematic review protocol: FM supported by VS and YT; Screened retrieved articles and abstracts for inclusion eligibility: FM and VS; Quality assessment: FM and VS; Data extraction and analysis: FM; Writing of first draft: FM; Critical review and revisions: VS; FM; VS and YT all read and agreed on the submitted manuscript.

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Data Availability Statement

All the available data that support the conclusions of this study have been presented in the manuscript.

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Supplementary file 1: Search histories

PubMed (Medline):

#1	(cancer* or tumor* or tumour* or neoplas* or carcinoma* or adenocarcinoma* or malignan*) Field: Title/Abstract
#2	Cervi* Field: Title/Abstract
#3	#1 AND #2
#4	"Uterine Cervical Neoplasms"[Mesh] or "Uterine Cervical Dysplasia"[Mesh]
#5	#3 OR #4
#6	"Vaginal Smears"[Mesh]
#7	"Papanicolaou Test"[Mesh]
#8	(vagina* or PAP or cervi*) AND (smear* OR test* OR screen* OR cytology or cytobrush) Field: Title/Abstract
#9	"Acetic Acid"[Mesh]
#10	"visual inspection" OR VIA Field: Title/Abstract
#11	Cervicography Field: Title/Abstract
#12	"Mass Screening"[Mesh]
#13	(#6) OR #7 OR #8 OR #9 OR #10 OR #11 OR #12
#14	"Africa"[Mesh]
#15	algeria OR angola OR benin OR botswana OR burkina faso OR burundi OR cameroon OR cape verde OR central african republic OR chad OR comoros OR congo OR "Democratic Republic of Congo" OR DRC OR djibouti OR equatorial guinea OR egypt OR eritrea OR ethiopia OR gabon OR gambia OR ghana OR guinea OR bissau OR ivory coast OR (Côte d' Ivoire) OR jamahiriya OR kenya OR lesotho OR liberia OR Libya OR madagascar OR malawi OR mali OR mauritania OR mauritius OR mayotte OR morocco OR mozambique OR namibia OR niger OR nigeria OR principe OR reunion OR rwanda OR "Sao Tome" OR senegal OR seychelles OR "Sierra Leone" OR somalia OR "South Africa" OR st helena OR sudan OR swaziland OR tanzania OR togo OR tunisia OR uganda OR zaire OR zambia OR zimbabwe OR "Central Africa" OR "West Africa" OR "East Africa" OR "Southern Africa" OR "South Africa" Field: Title/Abstract
#16	Search (#14) or #15
#17	Search (#5) AND #13 AND #16

Database: Embase 1947- May 2019:

1	((cancer* or tumor* or tumour* or neoplas* or carcinoma* or adenocarcinoma* or malignan*) adj2 (cervix or cervical)). ab. or ((cancer* or tumor* or tumour* or neoplas* or carcinoma* or adenocarcinoma* or malignan*) adj2 (cervix or cervical)).ti.
2	uterine cervix cancer/
3	uterine cervix dysplasia/
4	1 or 2 or 3
5	Papanicolaou test/ or vagina cytology/ or vagina smear/ or uterine cervix cytology/ or vaginal smear*.mp.
6	((vagina* or PAP or cervi*) adj2 (smear* or test* or screen* or cytology or cytobrush)). ab. or ((vagina* or PAP or cervi*) adj2 (smear* or test* or screen* or cytology or cytobrush)).ti.
7	acetic acid.mp. or acetic acid/
8	"visual inspection".ab.
9	"visual inspection".ti.
10	cervicography.mp. or colposcopy/
11	5 or 6 or 7 or 8 or 9 or 10
12	4 and 11
13	exp Africa/ or africa.mp.
14	("Central Africa" or "West Africa" or "East Africa" or "Southern Africa").mp.
15	(algeria or angola or benin or botswana or burkina faso or burundi or cameroon or cape verde or central african republic or chad or comoros or congo or "Democratic Republic of Congo" or DRC or djibouti or equatorial guinea or egypt or eritrea or ethiopia or gabon or gambia or ghana or guinea or bissau or ivory coast or cote d ivoire or jamahiriya or kenya or lesotho or liberia or libya or madagascar or malawi or mali or mauritania or mauritius or mayotte or morocco or mozambique or namibia or niger or nigeria or principe or reunion or rwanda or "Sao Tome" or senegal or seychelles or "Sierra Leone" or somalia or "South Africa" or st helena or sudan or swaziland or tanzania or togo or tunisia or uganda or zaire or zambia or zimbabwe).mp.
16	13 or 14 or 15
17	12 and 16

Cinahl (EBSCOHost):

#	Query
S15	S14 AND S14
S14	TX (africa or african) OR (algeria or angola or benin or botswana or burkina faso or burundi or cameroon or cape verde or central african republic or chad or comoros or congo or "Democratic Republic of Congo" or DRC or djibouti or equatorial guinea or egypt or eritrea or ethiopia or gabon or gambia or ghana or guinea or bissau or ivory coast or cote d ivoire or jamahiriya or kenya or lesotho or liberia or libya or madagascar or malawi or mali or mauritania or mauritius or mayotte or morocco or mozambique or namibia or niger or nigeria or principe or reunion or rwanda or "Sao Tome" or senegal or seychelles or "Sierra Leone" or somalia or "South Africa" or st helena or sudan or swaziland or tanzania or togo or tunisia or uganda or zaire or zambia or zimbabwe)
S13	S7 AND S12
S12	S8 OR S9 OR S10 OR S11
S11	"papanicolaou test"
S10	"cervicography"
S9	"acetic acid OR visual inspection OR visual inspection with acetic acid"
S8	TX (vagina* or PAP or cervi*) N2 (smear* or test* or screen* or cytology or cytobrush)
S6	TX cervical cancer OR TX cervical neoplasm* OR TX cervical carcinoma*
S5	S3 OR S4
S4	S1 OR S2 OR S3
S3	"(cancer* or tumor* or tumour* or neoplas* or carcinoma* or adenocarcinoma* or malignan*) N2 (cervix or cervical)"
S2	(MH "Cervical Intraepithelial Neoplasia")
S1	(MH "Cervix Neoplasms")

SCOPUS:

((TITLE-ABS-KEY (namibia OR niger OR nigeria OR principe OR reunion OR rwanda OR "Sao Tome" OR senegal OR seychelles OR "Sierra Leone" OR somalia OR "South Africa" OR "st helena" OR sudan OR swaziland OR tanzania OR togo OR tunisia OR uganda OR zaire OR zambia OR zimbabwe)) OR (TITLE-ABS-KEY ("guinea bissau" OR "ivory coast" OR "cote d ivoire" OR jamahiriya OR kenya OR lesotho OR liberia OR libya OR madagascar OR malawi OR mali OR mauritania OR mauritius OR mayotte OR morocco OR mozambique)) OR (TITLE-ABS-KEY ("cape verde" OR "central african republic" OR chad OR comoros OR congo OR "Democratic Republic of Congo" OR drc OR djibouti OR "equatorial guinea" OR egypt OR eritrea OR ethiopia OR gabon OR gambia OR ghana)) OR (TITLE-ABS-KEY (algeria OR angola OR benin OR botswana OR burkina AND faso OR burundi OR cameroon OR cape AND verde OR central AND african AND republic OR chad OR comoros OR congo OR "Democratic Republic of Congo" OR drc OR djibouti OR equatorial AND guinea OR egypt OR eritrea OR ethiopia)) OR (TITLE-ABS-KEY (africa*))) AND ((TITLE-ABS-KEY ("cervical cancer*" OR "cervical neoplasm*" OR "cervical dysplasia")) AND (TITLE-ABS-KEY ("PAP smear" OR "Papanicolau smear" OR "vaginal smear*" OR "acetic acid" OR "visual inspection"))))

Chapter 4: Research Design and Methodology

4.1 Research design

This chapter presents a detailed discussion of the fundamental methodological considerations that have shaped how this study was conducted. The methodological components include the research design, sampling procedures, data collection and analysis methods and ethical considerations that were employed. The justification for their choice is also highlighted.

4.1.1 Choice of research design

An explanatory design that uses the methodological complementarity of sequential quantitative and qualitative approaches was adopted (1). Thus, the study used mixed methods and was conducted in two phases using first, the quantitative then the qualitative methods. The first phase was a cross-sectional survey which used semi-structured researcher-administered questionnaires to collect quantitative data from women in their households. The second phase yielded qualitative data through FGDs with a subset of women purposively selected from questionnaire participants. The purpose was to further explore issues identified in the quantitative phase that would give depth of information in understanding barriers that women encountered in accessing cervical cancer screening services.

FGDs were succeeded by in-depth interviews conducted firstly with Community Health Workers (CHW) and nurses from the primary health facilities in the study wards and secondly, with nurses from each of the provincial hospital's departments that provide health services to women and lastly, with VIAC staff and decision makers in the VIAC programme as key informants.

The study subsequently developed from the quantitative to the qualitative approach using findings from the quantitative phase to inform the selection process for the qualitative phase (1). Accordingly, data from the qualitative component was utilised to build on and best explain the findings from the quantitative phase (2). The three data collection methods are discussed in more detail in sections 4.2.1-4.2.3.

 Figure 4.1 illustrates the development of the study and relationship between the methods.
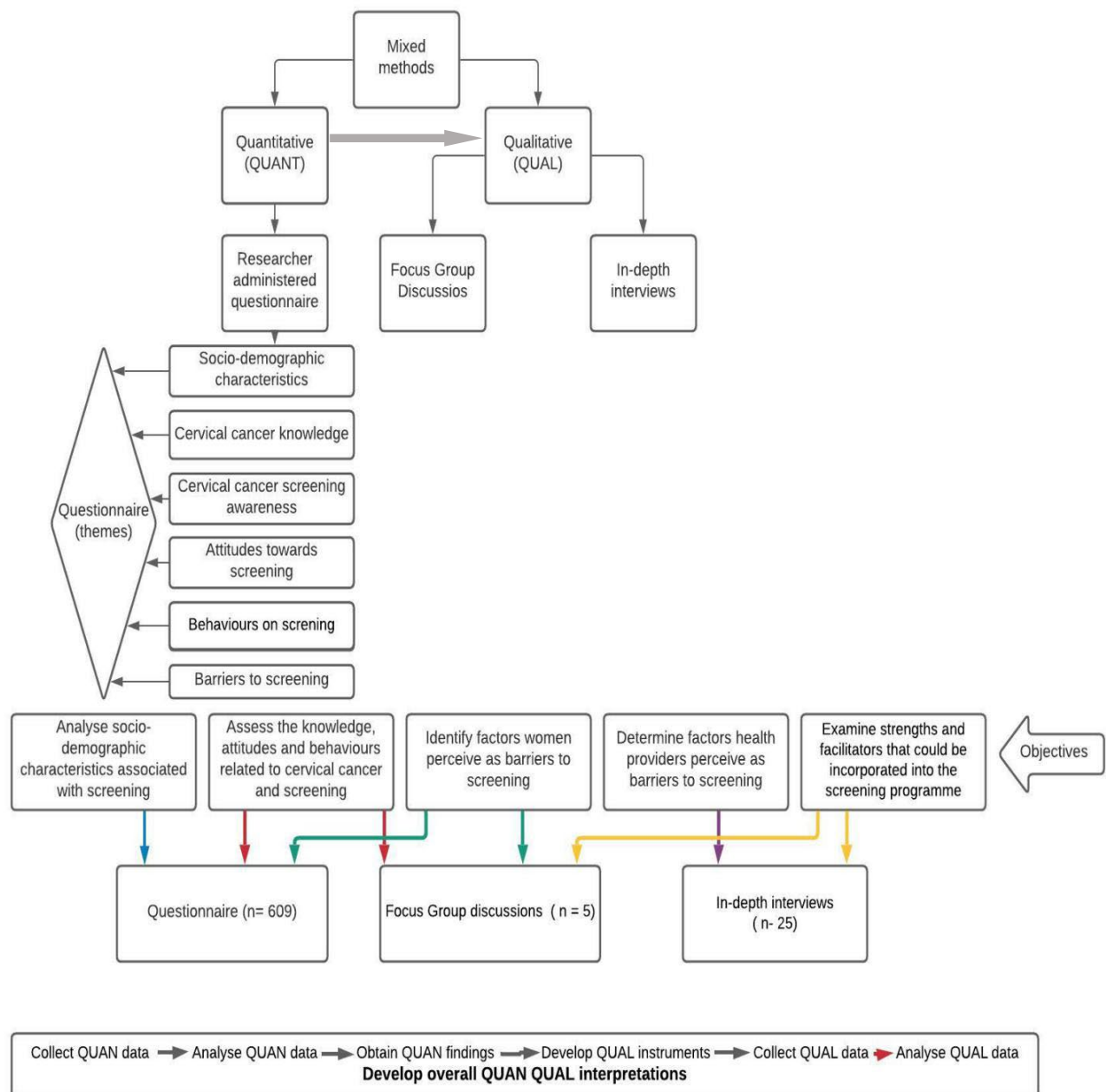
Figure 4.7: Research design and methodology showing relationships between methods

As depicted in Figure 4.1 and described by Creswell and Plano-Clark (3), in mixed methods research, quantitative and qualitative data are collected and analysed rigorously and persuasively based on the research questions. In this study, the two forms of data were integrated sequentially with qualitative data building on quantitative data to provide a well-rounded approach to answering the research questions.

4.1.2 Justification for a mixed method approach

Mixed methods research is defined by Tashakkari and Creswell in Creswell and Plano-Clark (3) as research in which the investigator collects and analyses data, integrates the findings and draws inferences using both

qualitative and quantitative methods in a single study. This approach was used as it allows for a broader and more synergistic utilisation of data that quantitative and qualitative data collection methods cannot do single handedly (4). The quantitative method allowed for the measurement of women's knowledge, attitudes and behaviours on cervical cancer screening and assessed barriers to screening through utilisation of figures. Women's socio-demographic characteristics were also captured. This enabled the achievement of the first three research objectives (see Section 1.7).

As highlighted by Polit and Beck (2), use of questionnaires is economic since a large number of participants can be surveyed in a relatively short space of time. Sample representativeness is also assured with an adequate sample (5). This increases the accuracy and credibility of research findings (6) (see Section 4.3.1.5). Furthermore, questionnaires ensure standardisation of measurement (7). This is because the same questions phrased in exactly the same manner are posed to participants (8), which reduces the potential for researcher bias.

A major disadvantage of the questionnaire however is that it captures the trend of a phenomenon but fails to explain the underlying reasons for that outcome (6). This means that data may just provide a general picture of the problem with no depth in it (7). In this study for example, the questionnaire results show that women have limited knowledge on cervical cancer but do not provide the insight into why that is so. Other disadvantages include reliance on participants' self-report, which can be prone to bias (6,7). Moreover, participants may perceive the response categories as limiting and give their responses based on the available response options, thus reducing the validity of the instrument through measurement bias (8).

The limitations of the questionnaire motivated the decision to also use FGDs and in-depth interviews in addressing the complex nature of the study as premised in the conceptual framework (see Figure 2.1). This provided an opportunity to probe and obtain a contextual in-depth understanding of women's and health providers' perceptions on the underlying challenges to accessing cervical cancer screening at the interpersonal, community and health system levels, beyond the individual woman. Although FGDs and in-depth interviews share many characteristics, they should not be used interchangeably (7).

FGDs allowed for a build-up on achieving the third objective while also addressing the fifth objective, whereas in-depth interviews enabled achievement of the fourth and fifth objectives (see Section 1.7 on study objectives). Polit and Beck (2) perceive the ability to acquire valuable information that is not likely to come from personal interviews as the major strength of FGDs. Group members react to what is being said by others, and that potentially results in deeper expressions of opinion. Responses can also be further explored with probing follow up questions to obtain rich in-depth information (7). The FGDs were semi-structured in nature to generate or build consensus from group interaction and responses to questions. This allowed for flexibility in the gathering of pertinent data while maintaining consistency in the questions asked.

Among the disadvantages of FGDs is the assertiveness of a few group members which may overwhelm ideas held by the rest of the group and thus introduce bias (9). Analysis of data gathered through FGDs may be difficult due to the large volumes of data generated which require transcription and deduction (9).

In-depth interviews have the ability to gather more elaborate information from individuals with specific knowledge and experiences pertaining to the area under study (7). Like FGDs, in-depth interviews also allow for depth in exploration of the topic, and provide an opportunity to clarify information that would otherwise be superficial (7). This increases the likelihood of obtaining useful responses. The potential for interpersonal bias that may result from group discussions is also eliminated (10). The disadvantages of in-depth interviews nonetheless are that personal interviewer bias may be introduced during the interaction (11). Coding and analysis of data is also very time consuming (12). The interview guide used for this study was semi-structured in nature which like the FGD guide allowed for introducing probing questions to further explore some points that were highlighted.

The mixed method approach strengthens the overall research design by compensating for inherent method weaknesses with inherent method strengths, and offsetting method biases, thus providing more comprehensive and convincing evidence (1). Confidence on the validity of results is also enhanced by the complementary types of data. This approach allowed for convergence and corroboration of results that were obtained from the three data collection methods. The research questions pertaining to barriers encountered in accessing cervical cancer screening and the nature of the barriers were quantified in a mathematical manner. At the same time, insight was gained into the scope of the identified barriers from the perspective of both the women and health service providers through use of the qualitative methods.

4.2 Study setting

The study was conducted in Gwanda, one of the seven districts located in the Matabeleland South Province of Zimbabwe. Gwanda district consists of urban, mining and rural communities with 24 rural (inclusive of mines) (13), and 10 urban wards (14), each represented by a Councillor. The district total population was estimated at 136 005 in the last census of 2012. About 69, 658 of the population is female with 51% (35, 528) aged between 15 and 64 years (15). The populace obtains its livelihood mainly through subsistence farming, cattle ranching, brick moulding, irrigation farming, gold panning, fishing, vending and cross-border trading (13).Gwanda Provincial Hospital is a tertiary facility situated in the town of Gwanda, the provincial capital. The 205 bedded tertiary institution that serves as a referral center to five district hospitals in the province, and 29 health facilities in the district including two mission hospitals has provided cervical cancer screening services since 2013 using the VIAC method. As of 2019, four nurses had received training in VIAC screening. A Polyclinic also situated in the urban area of Gwanda started providing VIAC services in 2020. Complimentary to that, there is a private medical practitioner in the town who also provides screening services since 2020. Figure 4.2 shows the location of Gwanda district in Zimbabwe and the study sites.
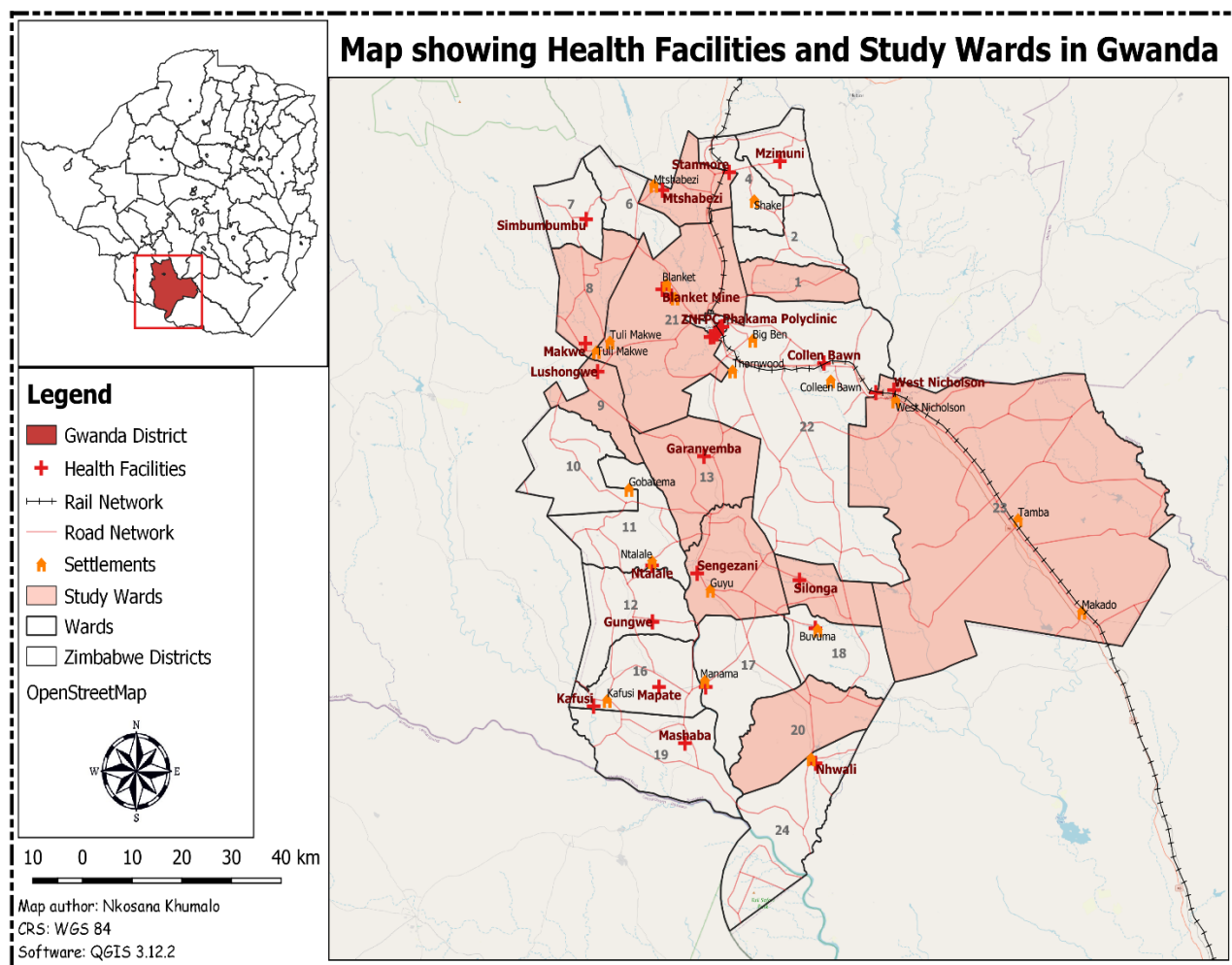
Figure 4.8: Gwanda district map

4.3 Research Methodology

Researcher-administered questionnaires, FGDs and in-depth interviews of health service providers were the research instruments used to collect data. The questionnaires were administered on women participants first, followed by FGDs with a subset of women from the survey participants and in-depth interviews of health providers after a full analysis of the survey data. Each of the instruments is discussed in detail in the succeeding Sections 4.3.1-4.3.3.

4.3.1 Semi-structured Researcher-Administered Questionnaire

The questionnaire used was adapted from the generic cervical Cancer Awareness Measure (CAM), a validated tool that was developed to measure levels of cancer awareness, explore risk factors for poor cancer awareness and for developing and evaluating interventions to promote cancer awareness (16). The cervical CAM's validity and reliability has been supported for a high Cronbach's α (0.77-0.84) and test retest reliability (r = 0.77-0.81) (17,18). The questions from the cervical CAM tool were modified to align with the research objectives and conceptual framework of the present study (See Figure 2.1 in Section 2.4).

4.3.1.1 Questionnaire design

Sreejesh and colleagues (19) suggest that in order to be effective, a questionnaire should be designed in a manner that can be easily understood by both the interviewer and the participant (19). The questionnaire for this study was modified from the cervical CAM tool following Sreejesh and colleagues' six-step process which is described below.

Step 1: Deciding what information is required

The purpose of questionnaires was to assess women's knowledge, attitudes and behaviours related to cervical cancer and screening, and to determine the prevalence and type of barriers to screening they faced. Participants' socio-demographic profiles also needed to be characterised. To obtain the relevant information, the instrument had six sections that addressed each of the components that would provide the specified information. The six sections were: socio-demographic characteristics, knowledge about cervical cancer, knowledge and awareness about cervical cancer screening, attitudes towards cervical cancer and screening, screening behaviours, and the barriers that hindered cervical cancer screening.

Step 2: Determining the content of questions

Specifying the content of questions is a prerequisite in the process of questionnaire development as the wording, format and sequencing of questions are dependent on this step (19). The information that the questions are supposed to generate decides the question content. A rough list of questions based on the research problem, objectives, and the conceptual framework was drafted. The socio-demographic section was included to achieve the first objective that analysed the socio-demographic factors associated with uptake of screening in order to assess if barriers to screening differed between women's socio-demographic profiles. A demonstration that participants had different socio-demographic characteristics would allow for assessment of sample representativeness. It was also deemed necessary to include questions that would elicit women's level of knowledge on cervical cancer and screening, their attitudes on screening and the extent to which screening services were utilised as well as what women perceived as barriers to screening. The responses would identify the determinants of cervical cancer screening that could help in developing strategies to address those factors. The content of each of the questions was tailored towards contributing an answer to the research questions.

Step 3: Developing the response format

The response format is concerned with the degree of freedom that is given to the participants in answering the questions (19). A predominantly closed ended format was chosen considering the succeeding FGDs that would provide an elaboration on the responses provided. Only two questions 22 and 33 were open ended questions (See Appendix 15). Question 22 asked on how cervical cancer screening is performed and served as a cross check on question 21 which asked which tests were used to screen for cervical cancer. It was anticipated that some participants could answer correctly on the tests used for screening but fail to explain how the procedure was performed which would then be probed during FGDs to determine if women had the appropriate

knowledge on screening procedures. Question 33 requested participants who had reported no history of screening on question 32 to give their reasons for their inability to screen. These responses were important as they were considered as barriers to screening, the dependent variable in the study.

Dichotomous closed ended questions described by Kabir (6) as questions that only have two answer options such as 'yes' or 'no' were applied on some questions. Nominal polytomous and ordinal polytomous questions that give participants a response choice from more than two unordered options, or more than two ordered options respectively were also used where it was necessary to have more than two response options (6). To allow for responses other than those listed, provisions were made through including the response options 'I don't know' or 'other, please specify' on some questions. This will be discussed further in Step 6.

Step 4: Careful wording of the question

Questions should be worded carefully to avoid misunderstanding of the question by the participants that may result in getting incorrect results (19). Accordingly, the questions were kept short, simple, and specific to avoid different interpretations by participants. An explanation of what is meant by cervical screening was first given before participants were asked if they had ever been screened. This was meant to ensure that participants understood what they were being asked in order to obtain an accurate answer. Due care was taken to avoid double barrelled and leading questions that could result in participants giving biased responses.

Step 5: Determining the sequence of the questions

Proper sequencing of questions facilitates better and effective responses (19). Although some authors argue that socio-demographic questions be kept to the end to avoid discomfort and diverting participants' attention (6,19), it was decided to ask those questions at the beginning. The decision considered that the first question would determine whether the interview could continue or not since only women aged 25-50 years met the inclusion criteria for the study. Age was thus put as the first question. The second section assessed women's knowledge about cervical cancer, which was necessary before they could be asked about cervical cancer screening in the third section. It was important to establish women's attitudes to screening in the fourth section prior to assessing their practices on screening in the fifth section. Questions in the sixth and final section determined if participants faced any barriers to screening and what those barriers were, and these directly addressed the research question. The questions thus flowed from the more general to the more specific in alignment with the research objectives (6), .

Step 6: Questionnaire pretesting and revision

Pretesting refers to testing the questionnaire on a small sample of participants that is similar to the actual participants on which the questionnaire will be administered (19). This includes evaluating all aspects of the questionnaire from question content, response format and wording right though to question sequence. The purpose is to assess if participants understand the question in the way the researcher intends. Pretesting is therefore essential for helping the researcher to identify flaws in the questionnaire and eliminate ambiguous

questions that could negatively influence the quality of data that would be collected (19). This enables the researcher to make final revisions to the questionnaire.

The questionnaire that was developed using the five previously discussed steps was pretested on 20 women attending health care at Gwanda Provincial Hospital, the referral center that attends to referred women from all residential settings in the district. The twenty women were approached as they were leaving the hospital and asked to participate in pretesting the instrument. Prior permission was obtained from the Hospital's Medical Superintendent. The purpose of the exercise was first explained to the women who agreed to participate with assurance of their anonymity and confidentially that would be attached to the information they would provide. Participants to the pilot study were asked to indicate the questions that were not clear, where additional responses were required, and if any additional questions were necessary.

All 20 participants gave input on the question content, wording, and formatting. Modifications were made with an addition of seven new questions and splitting a double-barrelled question into two questions. Omission of numbering on one question was also corrected. This brought the total number of questions to 39, from the 31 in the pre-test questionnaire. It should be noted that the question numbers in Appendix 15 are the final questions which include those that were added as a result of feedback from pretesting the questionnaire. The modifications made to the researcher-administered questionnaire are highlighted below:

i) Question 4 was reworded from 'how many children do you have' to 'how many children have you had'. This was meant to provide clarity as some participants were likely to count only their living children.

ii) On Question 5, the option 'other' was added to the responses

iii) Question 13 was reworded from 'what do you think causes cervical cancer' to 'what do you think is the main cause of cervical cancer'

iv) The statement 'use of herbs and other materials in the vagina' was added as one of the statements in question 14

v) Question 16 asking how cervical cancer can be prevented was added

vi) Question 18 was added which asked how HPV is transmitted

vii) Question 19 was added with option statements suggesting how males can help in reducing the chances of acquiring HPV.

viii) Question 21 that asked on the tests that are used to screen for cervical cancer was added

ix) Question 22 was reworded from 'what is cervical cancer screening' to 'how is cervical cancer screening performed' to remove the element of ambiguity

x) Three cervical cancer screening knowledge questions were added as follows:

74

- Can screening detect early disease? (Question 24)

- Is the disease curable if treated early? (Question 25)

- What is the recommended VIAC screening frequency in Zimbabwe in normal circumstances? (Question 26)

xi) Questions 35 and 36 were one double barrel question that was split into two questions

xii) There was omission in the numbering of question 37, so the question was numbered

The questionnaire labelled as Appendix 15 emerged from the six step process described by Sreejesh and colleagues (19) after the above mentioned revisions. This is the tool which was subsequently used in the study.

4.3.1.2. The sampling procedure

Sampling, defined as studying a subset from an entire population and making inferences or generalisations in relation to an existing theory is one of the most important factors that determine the accuracy of research findings (5). The integrity of an entire project is at risk if the sampling process is flawed (20). The concept of sampling recognises that it is too resource intense to include all members of the target population in a study. If a sample is to be used, by whatever method it is chosen, it is important that the individuals selected are representative of the whole population. Subsequently, Taherdoost (5) developed a six-step sampling process for the selection of a representative sample. The same sampling steps described below were followed to define the sample of women that were recruited to complete the researcher-administered questionnaire developed in Section 4.3.1.1.

Step 1: Clearly defining the target population

An inclusion criterion was drawn to include in the study women:

- Aged 25-50 years inclusive

- Resident in Gwanda district for at least six months at the time of the study

- With a history of sexual activity

- With no diagnosis of cervical cancer

- Who had an intact cervix and,

- Mentally competent to provide voluntary informed consent

Step 2: Selecting a sampling frame

A sampling frame is a list of the actual cases from which the sample will be drawn and it must be representative of the population (5). Before a sample can be selected, it is necessary to have a complete list of the population from which to select (20). The sampling frame for this study was provided by the Rural District Council of Gwanda for the rural and mining areas and the Municipality of Gwanda for the urban areas. The information on the district electoral wards, villages, suburbs, and households were thus made available to the researcher. Figure 4.3 presents a visual sampling frame used in the study.
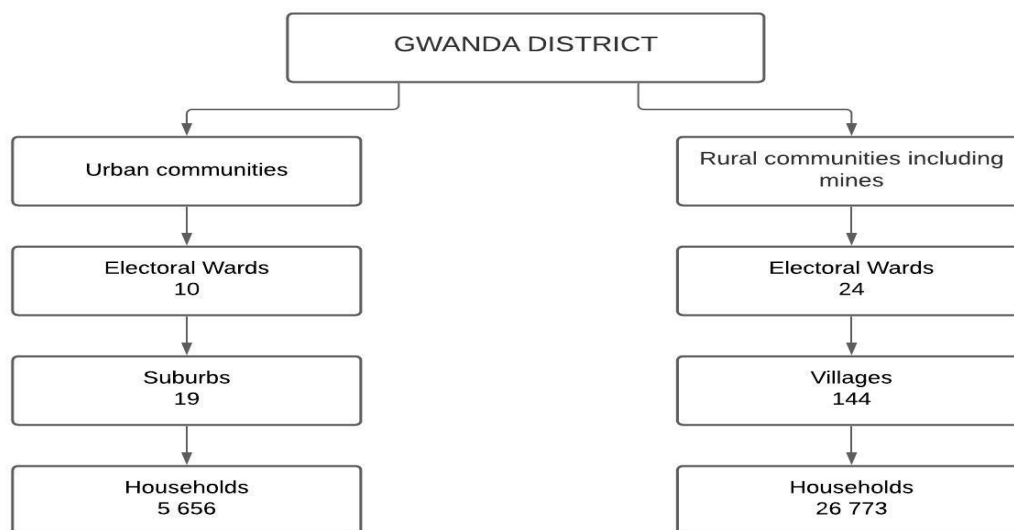
Figure 4.9: Sampling frame

Step 3: Choosing a sampling technique

Sampling is basically classified into two major types that is; the probability and non-probability, with many types categorised under each of the two. In probability sampling, each individual in the target population has a known chance of being included in the sample (21). Whereas the researcher controls the process since they start with a sampling frame of all eligible individuals or units, they have no control exactly over which individuals are selected. By comparison, in non-probability sampling, the researcher does not start with a complete sampling frame, so some individuals have a chance of not being selected (20). This poses a risk of having a non-representative sample. Given the large geographical study area and the heterogeneous nature of the target population, multi-stage sampling method was used.

Multi-stage sampling is a type of probability sampling that entails dividing the population into several clusters that are further divided and grouped into sub-groups or strata based on similarity (5). The process is continued until the cluster cannot be divided any further. Multi-stage sampling has the advantage of being flexible and

giving the researcher allowance to employ random or cluster sampling after the sub-groups are determined (5). On the other hand, because this sampling method cuts out some parts of the population from the study, the findings cannot be totally representative of the population as there is no means of establishing if the demographics not sampled could have provided useful information (5). In this case, the 24 electoral wards not sampled could be facing barriers to screening that are distinct from those experienced in the 10 sampled wards.

Selection of a representative sample for the study followed the sampling stages suggested by Taherdoost (5) outlined below:

i)   Stratification of the 34 electoral wards into three clusters; urban, rural and mining areas

ii)   Simple random selection of 10 electoral wards proportionate to the size of the strata: six from the rural areas, one from the mining areas and three from the urban areas. This served as the primary sampling unit. Simple random sampling has the advantage that every case of the population has an equal chance of being included. The major disadvantage is that a complete frame or list of all units in the whole population is required (5). This did not pose a challenge as complete lists of electoral wards were readily available from the Municipality of Gwanda and the Gwanda Rural District Council.

iii)   Stratified random selection of one village from each of the six selected electoral wards in the rural areas, one in the mining areas, and three suburbs in the urban area from each of the three selected electoral wards. This served as the secondary sampling unit. Stratified random sampling is where the population is divided into sub-groups or strata and a random sample taken from each sub-group (5). This method is used where there is a great deal of variation within the population, which was well suited for this study where residential locations varied, which enabled inclusion of all important sub-populations to ensure precision of results.

iv)   While simple random selection of households would have been appropriate to ensure sample representativeness, getting an already constructed up to date list of rural households proved to be a challenge and the logistics for constructing new lists from the six villages were too great. Simple random sampling was only possible in the three urban suburbs and the one mining area that had sampling frames. Purposive sampling of households in the six selected villages was done. This form of sampling allows for selection of typical individuals from the spectrum in which the researcher is interested (21). At this level of sampling, the CHWS identified households with women that were within the 25–50-year age category. The researchers then only approached the households with women who had that specific characteristic. The advantage of purposive sampling is its time and cost-effectiveness. However, selection bias may be introduced, and the method does not allow for generalisation of findings (5). Households served as the tertiary units of analysis.

v)   The woman who met the inclusion criteria in the sampled household was the unit of analysis. If the household had more than one woman who met the inclusion criteria, simple random selection was done to select only one who would be included in the study.

77

The sampling process is illustrated in Table 4.1.

Table 4.8: Sampling process

	Sampling stage 1: Stratification of district according to residential location as used in the electoral process			
	Urban	Rural	Mine	Total
Strata	1	1	1	3
Number of electoral wards in each stratum	10	24		34
	Sampling stage 2: Simple Random selection of electoral wards proportionate to size of strata			
Number of electoral wards sampled	3	6	1	10
	Sampling stage 3: Stratified Random selection of villages and suburbs in each selected ward proportionate to size of the strata			
Number of villages sampled	3	6	1	10
	Sampling stage 4: Purposive selection of rural households, simple random sampling of urban and mine households (Probability proportionate to size approach was used in selecting households within the selected villages. This was dependent on the number of households in each village or suburb)			
Number of households sampled	209	368	32	609

Multi-stage sampling was selected over other sampling methods because it best suited the nature of the target population. The following methods were not chosen because of their major drawbacks described as follows:

i) Convenience sampling is a non-probability method which enrolls participants according to their availability and accessibility and hence has a potential for selection bias (22). Most women in Gwanda district are vendors or engaged in community income generation projects hence spend most of the day away from home. Those women found at home could not have been representative of the target population.

ii) Systematic sampling is a probability sampling method which selects participants at fixed intervals from some list or ordering (22). Given the time constraints, it would have taken much longer to achieve the desired sample size if women who met the inclusion criteria were not available in the systematically sampled households. This is because in Gwanda district, women in most households are elderly above 60years, or young and less than 25 years. Consequently, approaching households known to have women within the desired age group was considered more efficient.

iii) Snowballing is a non-probability sampling technique where the researcher asks each participant to refer them to their colleagues who possess the same characteristics as themselves (22). This was deemed not suitable as it would have taken much longer to follow up on the potential participants suggested by those sampled. The sample would also have been prone to selection bias since most introvert women could not have been mentioned by anyone and therefore excluded.

iv)   Finally, quota sampling is another non-probability method which has the intent of selecting a sample whose frequency distribution of characteristics reflects that of the population of interest (5). The socio-demographic characteristics of the target population were not known prior to the study, and it would have been too time and cost consuming to determine them.

Step 4: Determining the sample size

The sample size is a significant feature of an empirical study where the goal is to make inferences about a population from a sample (23). Larger sample sizes reduce sampling errors and biases while enhancing representativeness of the target population (23). Taherdoost describes three key considerations that need to be applied in the estimation of sample size (23). These can also be expressed as statistical formulae.

i)   Estimation of the level of precision

This is the margin of error or risk that the researcher is willing to accept. The smaller the value of the level of precision required, the greater the sample size required. A 5% margin of error is acceptable in social research (23) and the same was used in this study.

ii)   The level of confidence that the research findings are accurate

The Confidence Interval (CI) is the degree to which we can be sure that the population characteristics have been accurately estimated by the sample survey. The typical levels of confidence are 95% or 99%. The CI of 95% was decided on for this study, which implied that 95 out of 100 samples would have the true population value within the margin error specified, 5% in the present study

iii)   Estimation of the variance or heterogeneity of the population

This denotes the percentage of the sample that has the characteristics, which for this study is the percentage of women who face barriers in accessing cervical cancer screening services. If the characteristics are unknown, 50% is used as an estimate as this will result in the maximization of variance and generate the maximum sample size. The calculation in this study also assumed a 50% prevalence of barriers to cervical cancer screening as there was no known information on that.

In light of the above-mentioned considerations and under the guidance of a biostatistician, a sample size that would contribute to providing scientific validity to answer the research question was calculated at 628 participants using the formula:

$$n = \left[t^2 \times \frac{p \times q}{d^2} \right] \times DEFF \longrightarrow n = \left(2.045^2 \; x \; \frac{0.5 \; x \; (1-0.5)}{0.05^2} \right) x \; 1.5$$

$$= 627.30$$

$$= \underline{\mathbf{628}}$$

Where   n = sample size

t = 2.045 (linked to 95% Confidence Interval for cluster sampling)

p = expected prevalence (fraction of 1)

q = 1- p (expected non-prevalence)

d = relative desired precision

DEFF= Design effect

In brief, the calculation assumed a 50% prevalence of barriers to cervical cancer screening, desired precision of 5%, 95% Confidence Interval and a design effect of 1.5. The design effect is a correction factor that accounts for the heterogeneity between clusters with regard to the measured indicator (prevalence of barriers to cervical cancer screening) in cluster sampling (24). If there is no previous information about design effect from previous surveys, 1.5 -1.8 can be used as the default estimate design effect (24). The calculation used a design effect of 1.5.

Step 5: Collecting data

Data collection was performed by the author over a period of 23 days from six rural villages, one mining community; and three urban suburbs. Three research assistants with a nursing background, one of which was recruited from Gwanda district were recruited and trained on questionnaire administration procedures. This was to ensure that they had the same understanding of each question and took note of the interviewer instructions which had been provided for some questions. Training was conducted over a period of one day with the goal of improving the quality of data collection and minimising interviewer bias. Data were collected using 'Mobenzi Researcher'. This is a digital mobile data collection tool using an android app that was configured to prevent progression to the next question before a response to the previous question had been captured. This measure ensured completeness of collected data. Training of the research assistants included the use of this tool. To assist data collectors in identifying women who fell within the 25-50-year age group and locate such households, the VCWs and Health Promoters from each of the selected villages and suburbs were recruited and also given orientation on research procedures.

Data collection procedures followed the following process:

i)   The research team moved from one household to the next of those purposively or randomly selected until the required sample size from that village or suburb as previously calculated was achieved. Probability proportionate to size approach was used in selecting households within the selected villages and suburbs. (Refer to Table 4.1)

ii) The data collectors approached the identified households, introduced themselves, stated the purpose of the visit, and sought permission to have a meeting with the selected participant. Potential participants in each village had already been sensitised about the study by the community gatekeepers whom the researcher had met prior to the data collection period.

iii) After the researchers had been granted permission, a request was made for a private area for completion of the questionnaire. This was to ensure that correct and objective information would be provided by the participant away from other family members who could influence her responses at the interpersonal level as illustrated in the conceptual framework. However, there were three instances where the spouses insisted on being present, citing that they also wanted to learn about cervical cancer screening so as to provide future support to their spouses. The requests were granted as there were no sensitive personal questions which could have compromised the participants' relationship with their spouses.

iv) The researcher would check if the woman met the inclusion criteria and if not, she would be thanked and excused.

v) If the woman met the inclusion criteria, the nature and goal of the study were explained to her and any questions she had addressed. The participant would then be asked to read and sign the written informed consent form if she consented to participate in the study (See Appendix 9). If she could not read or write, the researcher would read out the information to her and ask her to sign the consent form using a right thumb print. A copy of the signed informed consent form was given to the participant to keep for her own records.

vi) The questionnaire would then be administered in the local language or in English according to the participant's preference. On completion, the participant would be thanked, given an information booklet on the screening programme developed by the MOHCC, and advised to share the information with her family and other women in the community.

vii) Finally, the participant would be sensitised on the possibility of being invited to attend an FGD at a later date and if selected, would receive further information from the VCW on the date, time, and venue. The researcher explained that participants for FGDs would be identified from the survey responses and hence to protect their anonymity, only the research team would be privy to information that identified the completed questionnaire with the respondent through the completed and signed informed consent form.

Step 6: Assessing the response rate

Response rate is the total number of completed questionnaires out of the total number of potential participants with whom contact was made (25). The response rate is important because each non-response is likely to bias the final sample (5). The higher the response rate, the more reliable the results and the more representative

they are of the study population (26). In most instances, a response rate of 75-80% is accepted as the de facto standard (26,27). Other authors however argue that while a high response rate in a survey is an important indicator of survey quality, it is not sufficient on its own to judge the quality of a study (25).

A total of 609 questionnaires were completed, representing 96.9% of the sample and thus contributing to the quality of the study. Six refusals to participate were experienced in the urban set up with potential participants citing being busy as their reason for not participating. Thirteen women who were approached did not meet the inclusion criteria. Although they were in the 25-50-year age category, they did not meet other requirements for inclusion.

4.3.1.3 Addressing issues of sampling bias and sampling error

Sampling bias is the selection of certain subjects over others for inclusion in the sample. (28) This results in subjects less likely to enter the study being under-represented and those more likely to enter the study over-represented. The sample is thus not representative of the target population and this undermines the integrity of the study. Sampling error on the other hand results from a biased sampling procedure where the sample is not representative of the entire population, this reflecting variation in the data obtained (29). This can affect the outcome of a study since the sample used to represent the target population would be based on an inaccurate estimation. Sampling error can also occur by chance as it is often not feasible to do a census for a research study (29). To reduce sampling bias, sampling methods that give every potential participant a chance of being included in the study, and use of large samples to reduce variation in the data is recommended (28,29).

The potential for bias in this study was minimised through use of probability sampling in the selection of wards and villages as shown in Table 4.1. At rural household level, attempts were made to cover all sections of the village to ensure a wide geographical coverage thus giving every eligible woman a high chance of participating. The purposively selected participants not found in their homes would be followed and found at the community income generation project sites where they normally spent most of the day. Community leaders were cooperative and would release the women for completion of the questionnaire. This was because they had earlier been engaged with before data collection commenced (see Step 5 (point ii) of Section 4.3.1.2). Most randomly selected women in the urban area were vendors and spent most of the day in their stalls where they were followed if not found in their homes. Use of a large sample addressed the potential for sampling error in this study. The sample size of 628 calculated in Step 4 of Section 4.3.1.2 was considered adequate to minimise errors in sampling.

4.3.1.4 Addressing issues of non-sampling error

Non-sampling errors result from mistakes that occur while gathering data, either through wrong capture of given information or omission of data (29).

The most common non-sampling errors are (29):

i)   Response error

Is when the participant deliberately gives a wrong answer. The error arises due to social desirability where the participant provides an answer, they presume the researcher would like to hear. Participants may also be unwilling to give truthful responses if they perceive the research as a witch hunting exercise and would therefore try as much as possible to withhold responses they believe could cause someone trouble. In this study, women could probably think that health service providers would be put to task if they revealed barriers relating to the health system.

ii)   Interview error

This occurs when the interviewer records information incorrectly or influences the participant to respond in a certain way that will be favourable to the results they expect.

iii)   Non-response error

This results from non-participation by those selected.

The potential for non-sampling error was addressed through having preliminary meetings with the district and community gatekeepers to explain the purpose of the study. This was done to secure their buy-in and subsequent dissemination of the pending study to their constituents. Non-response error was thus minimised as potential participants had already been sensitised about the study and were anticipating their participation. Furthermore, an assurance of the participants' anonymity and the high level of professionalism and confidentiality with which their responses would be handled was given. To address the response error, the purpose of the study was also explained to the participants before the questionnaire was administered. It was also highlighted that the provincial and district health authorities were in full support of the study and their truthful responses could contribute towards the improvement of screening services. The risk for interviewer error was controlled for through training Research Assistants on data collection procedures to ensure that questions were asked in an objective manner and data was captured without any modifications.

4.3.1.5 Enhancing the reliability and validity of data

The ability to answer a research question is only as good as the quality of the data collection tools, or the data collection procedures (30). Consequently, it is important to establish the reliability and validity of the instruments to ensure that data are sound and replicable and the results are accurate(31). The evidence of reliability and validity is a pre-requisite to assure the integrity and quality of a measuring instrument (31). The reliability of a measure indicates the extent to which it is free of bias and hence assures consistent measurement across time and various items in the instrument (30). If sampling bias and sampling error are minimised, reliability is also improved (30).

Reliability of data was enhanced through use of an instrument modified from the validated cervical CAM questionnaire which has been used in many cancer studies over time. Two parallel tools for assessing the barriers to cervical cancer screening from the perspectives of women were used, that is: the questionnaire and FGDs. The two instruments produced results which were highly correlated and that could be an indication of the reliability of the data collection instruments. Pretesting of the questionnaire to assess for appropriateness of the instrument was also done on women with similar characteristics to those that participated in the main study. A large sample size of 628 participants was chosen to enhance reliability. The questionnaire was also developed to be answered in a reasonable time of about 30 minutes to enable obtaining accurate responses from participants before they got distracted.

Validity is a test of how well an instrument that is developed measures the particular concept that it is intended to measure (30), and how well it does it, represented as the truthfulness of findings (31). Validity has two essential components described by Mohajan (31) as:

i)   Internal validity, which indicates if the findings of the study are authentic through the way the groups were selected, data were recorded, or analyses were performed. This reflects if the study can be replicated.

ii)   External validity, which demonstrates whether the study findings are transferrable to other groups of interest.

The validity of the study was enhanced by engaging an independent senior doctor who is attached to the VIAC clinic of a central hospital to assess the tool for its comprehensiveness in design and adequate coverage of the study aspects to effectively address the research questions. Representation of the target population was achieved through multi-stage random selection to ensure that the heterogenous groups from all three residential locations that is urban, rural, and mining areas were included in the study. A precise description of the methodology was presented to allow for study replication. The research protocol was also adhered to in the process of generating research findings in compliance with the requirements of scientific research (31).

4.3.1.6 Ethical considerations

Ethics in research refers to the established rules and guidelines that direct the conduct of a researcher (32). In other words, the actions of a researcher should be professional and adhere to the basic ethical principles throughout the research activity. The protection of human subjects through application of appropriate ethical principles is important in any research study (33). Consequently, all ethical safeguards related to institutions, participants and research integrity (32) were observed during the entire research process and ethical issues addressed as described below:

i)   Ethical approval and access to participants

        The study was designed and conducted in accordance with the policy for research conduct at Stellenbosch University, in particular, section seven which deals with research involving human

participants. Ethical clearance for the study was sought and obtained from the Stellenbosch University Health Research Ethics Committee (HREC) (see Appendices 1 and 2). The Medical Research Council of Zimbabwe (MRCZ)'s policy on the conduct of research was also adhered to with particular focus on the ethical procedures for the protection of human research participants. Ethical clearance to conduct the study was subsequently sought and secured from MRCZ (see Appendix 3). Approval to conduct the study was requested and obtained from the Zimbabwe Ministry of Health and Child Care (see Appendix 4) and the Provincial Medical Directorate (PMD) of Matabeleland South Province, the authority that has jurisdiction over all health issues in the province (see Appendix 5). Permission was also granted by the relevant authorities in Gwanda district where the study was conducted namely; the District Medical Office (see Appendix 6), Municipality of Gwanda (see Appendix 7) and Gwanda Rural District Council (see Appendix 8). Community leaders in the various study wards were also informed of the research prior to data collection and coordinated the dissemination of information on the impending research and its purpose to their constituents.

ii)   Voluntary and informed consent

Consent to participate should be given freely and participants made to understand what is being required of them (33), .Women consented to participate after the purpose of the study was explained to them including possible future benefits that could accrue from the study, that of improving service delivery and accessibility of the service to women in the district. No enticements were given to coerce women into participation. Furthermore, only those women who were competent to give their consent were included. All women who agreed to participate were requested to provide their written informed consent in accordance with the MRCZ guidelines (see Appendices 9 and 10).

iii)   Maintaining anonymity and confidentiality

Anonymity in research is concerned with the attribution of information, that is; ensuring that individuals cannot be identified from the data they provide (34). Confidentiality on the other hand refers to the steps that are taken to protect the identity of the participant from being revealed to those outside the study once the information is in the researcher's possession (2). Confidentiality is a key measure of ensuring the protection of participants' private information and hence, safeguards to ensure its maintenance at all stages of the research process need to be implemented. To address issues of confidentiality and anonymity in this study, identification numbers were assigned to each completed questionnaire instead of using the participants' names. Signed informed consent forms are kept in a locked cabinet file accessible only to the author to protect the participants' identification. Digital data on Mobenzi software are secured through a password protected file to restrict access to unauthorised persons.

Before the questionnaire was administered, participants were informed about the type of information that would be collected and how their identities would be protected. In addition, they were constantly reminded and assured that their personal information would be handled carefully. This precaution was taken recognising

that if worry of a confidentiality breach lingered in their minds, they could inadvertently provide inaccurate information or withhold information that was vital to the study.

iv)   Protection from harm

It was anticipated that the study could invoke participants' emotions due to the sensitive nature of the subject, for example if a participant had a relative with cervical cancer or who had died from the disease. Participants were informed prior to giving their consent that they could withdraw from the study at any point without suffering any prejudice if they thought answering the questions could impact on their emotions. During their training, research assistants had been prepared to manage the situation in the event that emotions arose. This was an embracement of the principle of avoiding harm to the participant, referred to as non-maleficence (32).

v)   Data protection

Electronic data files are stored in password protected databases on the researchers' laptop. The files were shared with the biostatistician through password protected electronic mail. The information storage in the author's personal laptop, memory stick and hard drive are all protected by passwords known only to the author. Paper based copies of participant consent forms are stored in a locked cabinet file and will be kept for as long as they would be required in accordance with the Stellenbosch ethical guidelines, after which they will be destroyed using a safe and secure method of shredding. The same ethical considerations were applied to the participants on whom the questionnaire was pretested.

4.3.1.7 Data analysis

Quantitative data were collected using Mobenzi Researcher as mentioned in Step 5 of Section 4.31.2. This is a software package that creates a database of analysable data with the capability of importing the survey results directly into a data analysis programme. Data were imported into Microsoft Office Excel and STATA version 15.1 (StataCorp Inc., College Station, TX, USA) for analysis. To get a feel of the data from the 609 completed questionnaires, inconsistencies in the data were first identified and corrected and frequency distributions run (8). The initial univariate analysis was performed to describe patterns across participants' demographic profiles (8). Alongside the frequencies summarising the distribution of responses on each survey question, measures of central tendency on the participants' age and parity were also determined. The median and inter-quartile ranges were reported since the data was non-normally distributed.

Responses to open ended questionnaires were coded manually according to emerging themes and categorical variables generated. These were then analysed as quantitative data. Composite variables were created from highly related questions assessing participants' knowledge about cervical cancer, knowledge about cervical cancer screening and attitudes towards cervical cancer screening (35). Cross tabulations with Fisher's exact and Chi-squared tests were then performed to test for associations between socio-demographic profiles, knowledge and attitudes on cervical cancer, and uptake of screening as well barriers to screening, the outcome variables. The level of statistical significance was set at a p-value ≤ 0.05. Log-binomial regression analysis

was conducted to establish associations between predictor and outcome variables in order to identify variables that would be used in the multivariable log-binomial regression analysis. This stage would control for possible confounding variables (36) and compute the adjusted relative ratios for the predictor variables. Pie charts, frequency tables, bar graphs and scree plots were constructed to illustrate the analysed data.

4.3.2 Focus Group Discussions

A focus group discussion is broadly defined as a facilitated discussion with a group of people on a topic of common interest, in order to collect rich detailed data about their views and experiences (9). As mentioned in Section 4.1.1, the most compelling reason for using FGDs in this study was to gain greater insight into collective community thoughts and opinions on the cervical cancer screening programme in Gwanda district. Baral and colleagues (9) describe six steps involved in the successful conduct of FGDs to yield thick rich expressive information meant to address the topic under discussion. The same steps were followed in this study and are discussed in the next Section 4.3.2.1.

4.3.2.1 Design of the FGD

Step 1: Identifying the type of respondents required according to the study

The same participants who completed the questionnaire were engaged to clarify the findings from the quantitative survey. This enabled the author to obtain a deeper understanding of women's opinions on cervical cancer screening at group level as opposed to individual level. To ensure rigour in participant selection, purposeful sampling using the maximum variation strategy with defined criteria was used. This is a non-probability purposive sampling strategy that involves selection of cases with the widest differences in characteristics for the purpose of identifying important common patterns that cut across variations (9). Thus, instead of seeking representativeness through equal probabilities, maximum variation seeks it by including both extreme and typical cases in the target population that meet the inclusion criteria (37). As mentioned in Section 4.1.1, FGD participants were selected during the analysis of quantitative data. For each suburb, village and mine under study, the following selection criteria were used:

i) Different age groups, within the brackets of 25-34, 35-44 and 45-50 years

ii) Different marital statuses; single, married, cohabiting, divorced or widowed

iii) Varying educational attainments which could be primary, secondary or tertiary education

iv) Different levels of knowledge on cervical cancer and screening classified as inadequate, average and adequate

v) Different screening statuses; never screened and screened at least once

vi) Reported barriers to cervical cancer screening and no barriers to screening

vii) Different categories of barriers; intrapersonal, interpersonal, community or health system related.

From each of the seven selection criteria, the groups were selected carefully to avoid having many participants with the same characteristics in one group. The heterogeneity of the sample allowed the researcher to gain as much insight into the perceived barriers of cervical cancer screening from as many angles as possible, which helped to construct a robust view of the issue and effectively answer the research questions. In addition to the varied characteristics, participants were also selected on their availability and willingness to participate.

Step 2: Selecting moderator and field teams

As principal investigator, the researcher played the moderator role. Two research assistants who had been involved in the quantitative survey were re-engaged for the qualitative component of data collection. Included was the research assistant employed in Gwanda district, chosen because of her familiarity with the district's health operations and personnel. For quality assurance, it was necessary to work with people who were already familiar with the study and who understood the language of the participants.

Step 3: Developing the facilitator's guide and format for recording responses

The discussion guide was developed based on the research objectives and conceptual framework with the goal of building on to the quantitative survey data in answering the research questions. Furthermore, cognisance was taken of the way participants had responded to the questionnaire and prominent issues needing further exploration were included in the FGD question guide. The question guide explored the knowledge, attitudes, and behaviours of women in relation to cervical cancer, barriers to cervical cancer screening and recommendations for improving screening uptake among women in the district (see Appendix 17). Probes were included to guide the gathering of data.

Suggestions by Marczak and Sewell (9) on creating questions for the FGDs were followed as highlighted below:

i)   For best results, the number of questions should be kept reasonable to prevent participants getting worn out by a long discussion:

The question guide had 10 questions. These were considered not too long and had been adequately answered in one hour during pretesting of the instrument.

ii)   Use open ended questions and avoid 'yes' or 'no' questions:

The questions were worded in a way that could not be answered with a simple 'yes' or 'no'. Most questions started with 'what'? Probe questions were introduced into the discussion to enable participants to feel more comfortable to share their opinions with the group. Probing questions used included: Could you say more about…? do you have further examples of ……? can you give a detailed description of …….?, anything else?

iii) Questions should be systematically prepared and arranged in a logical sequence:

The questions were developed following the structure of the objectives. As suggested by Baral and colleagues (38), the questions flowed from the general, to get participants warmed up and open to further questions, and moved to the specific which directly contributed to answering the research questions. Feedback on the question content and flow was also received from the project co-supervisor who is an expert in qualitative research.

Step 4: Training field team and pre-test data collection instrument

In line with Marczak and Sewell's recommendations (9), the researcher familiarised themselves with the moderation role. This included keeping the discussions flowing and on track, guiding the discussion back from irrelevant topics and managing smooth transitions to the next questions while being sensitive to the mood of the group and making observations on the conduct of group members when pretesting the instrument. The first research assistant's role was to screen the women for participation in the wake of COVID-19. The second handled environmental conditions and ensured that all participants were comfortable and there were no disturbances in addition to audio recording of the proceedings. The author trained the research assistants on their roles and on how the FGDs would be conducted to ensure they well understood the information that needed to be elicited from the discussion. This also included observing interactions and looking for agreements and disagreements on issues within the group.

As mentioned in Step 6 of Section 4.3.1.1, pretesting of data collection instruments with people in the target population ensures that the instrument is clear and all the important questions are asked and are appropriate (39). Furthermore, pretesting is an effective way of improving validity in the collection of data while ensuring reliability in rigour in qualitative inquiry and analysis (40). Pretesting also provides an opportunity to make adjustments to the question guide and data collection procedures (40). The discussion guide, which was developed in English and translated to Ndebele, the predominant local language, was pretested on 10 women attending health services at Gwanda Provincial Hospital who possessed the same characteristics as those who would be included in the main study.

Hurst and colleagues (40) provide main selection criteria to assess the rigour and relevance of qualitative data collection instruments and procedures as follows; evaluating language competency and content validity of data collection materials, estimating time length of interview delivery and marking periods of respondent fatigue, maximising methodological skills and achieving proficiency standards for data collection, and assessing the feasibility and fidelity of translation and transcription protocols in preparation of the interview text for qualitative analysis.

This study assessed for the same specific aspects during the pretesting of the discussion guide as explained below:

i)   Evaluating language competency and content validity of data collection materials:

Participants suggested locally used terms for female reproductive organs and intimacy terms. The researcher noted that one question which read 'do you believe cervical cancer can be detected earlier and treated?' was leading and produced 'yes' or 'no' responses. The question was revised to 'could you please suggest ways that could be used to detect cervical cancer in its early stages when it can still be treated?'. Similarly, another question which asked participants if they had ever been screened for cervical cancer was split into two questions and phrased as; 'could you please share your cervical cancer screening experiences' and 'sometimes people put off going for cervical cancer screening, what could be the reasons for this?'. Apart from the above concerns, participants were satisfied that the questions were appropriate, simple and easy to understand (see Appendices 17 and 18).

ii)   Estimating time length of interview delivery and marking periods of respondent fatigue:

The pretest discussions lasted one hour and seven minutes in line with the AIDS Control and Prevention project which states that *"If the FGD is well organised, it will rarely last longer than one hour"*(39). The session was interactive with most participants eager to share their opinions.

iii)   Maximising methodological skills and achieving proficiency standards for data collection:

Training of research assistants on the data collection procedures and clarification of their roles helped improve efficiency in the collection of data. The researcher also practiced their moderation skills and succeeded in keeping the discussion flowing and on track. This improved efficiency and created a more organised approach for the main study.

    iv) Assessing the feasibility and fidelity of translation and transcription protocols in preparation of the interview text for qualitative analysis:

Translating semantic content usually presents challenges especially if the study is conducted across language groups (40). This is because there may be different norms and expectations of words or phrases which can affect the way participants respond to questions. Accuracy of data collected could also be affected if the researchers have different cultural backgrounds from that of participants which could result in the wrong capture of the presented concepts, thus introducing ambiguity in the translation and transcription of text (40). In this study, pretesting of the instrument helped to learn the locally used and acceptable words and phrases from the participants. In addition, the commonly used and acceptable terms were brainstormed by the group at the beginning of each FGD session. Having the background knowledge of the target group's expectations of words helped to prepare for and enabled highly interactive discussions. Translation and transcription challenges were minimised as the questions were asked in a way that all participants understood. Knowledge of the local language also prevented capture of distorted data. In addition, one of the research assistants was

recruited from Gwanda district to serve as a cultural informant (40). Having someone with an appreciation of the district culture helped increase the research team's understanding of the community norms which led to accurate information being obtained, resulting in efficient translation and transcription.

4.3.2.2 Sample size

As mentioned in Sections 4.1.1, the target population for FGDs was women in the 10 study wards that had participated in the quantitative survey. The participants were selected using maximum variation sampling. Determining the number of FGDs required in a study is a key element of research design as sample size influences other study components such as programming and the budget (41). However, in qualitative research, sample size determination has no fixed rules, but is based on information needs and guided by data saturation (2), which cannot be determined in advance (41). Data saturation is the point in data collection at which same issues keep on coming up and further data collection becomes redundant (41).

While an adequate sample size to reach saturation is likely to differ from one study to the next depending on a range of parameters, Guest (2017) observes that when using a semi-structured discussion guide, three to six FGDs are sufficient to capture 90% of themes in a homogenous study population with respect to education, employment and household income (42). In maximum variation sampling, the method that was used to select FGD participants in this study, data saturation is likely to occur at five groups irrespective of the approach to code development (43). In short, relatively few groups are required to generate new issues in a study.

For studies which use stratification in sampling as was the case in this study where stratification was the first stage in the sampling process, data saturation occurs after five groups, representing the point at which at least one FGD from each stratum is included (41). It is not the number of groups that determine meaning saturation but rather, the point at which all strata are included in the study (41). Further to that, it is recommend that two groups be conducted per stratum to provide a more comprehensive understanding of issues to adequately capture nuances of comprehensive codes (41). Little additional benefit is derived for data richness in conducting more than two groups per strata (41). The quantitative survey was conducted in six rural villages, one mining town and three urban suburbs. Subsequently, two FGDs were held in each of the rural and urban communities respectively and one in the mining community as it was the only one in that stratum. A total of five FGDs were therefore conducted. A focus group typically comprises seven to ten participants (9). Ten participants are considered as large enough to gain a variety of perspectives and small enough not to become disorderly or fragmented (44). In light of this, ten participants per group were recruited for this study.

4.3.2.3 Data collection procedures

Focus group discussions were conducted after a period of 18 months from the time quantitative data was collected, 12 months after the scheduled time. The delay was due to COVID-19 containment measures that necessitated lockdowns and restrictions on inter-province travel. However, this allowed for an intense analysis

of quantitative data and identification of areas that needed further exploration while setting the scene for the FGDs. The FGDs were eventually conducted in the manner described as follows:

i)   The researcher selected FGD participants from the analysis of quantitative survey data using maximum variation sampling in which participants with diverse characteristics according to the inclusion criteria were selected from each site. This was to ensure a deeper understanding of the barriers to cervical cancer screening from the perspective of women with varied characteristics. Double the number of the expected participants were identified in each ward to cater for the possibility of non-availability of some participants, declines to participate, or failure to attend after accepting (2).

ii)   One week before the scheduled FGD dates, the author communicated the names of the maximum variation sampled women from each of the five selected wards to the respective VCWs. The women's questionnaire identification numbers were matched to the signed informed consent forms to obtain their names. The VCWs were requested to recruit each of the selected women to participate in the FGDs. Although VCWs knew the names of most women in their catchment areas, there were a few whom they could not identify from the list that was provided. In that case, they would approach the next woman who matched their characteristics in the list. It would have been thoughtful to include the mobile phone numbers on the consent forms for easier recruitment of FGD participants

iii)   The VCWs reminded the selected women that had agreed to participate a day before the scheduled day to remind them of the meeting and confirm their attendance.

iv)   The venues were arranged with observance of all COVID-19 precautionary measures that included physical distancing in the seating arrangement, which was circular, with the recording instrument placed on a stool at the center. As participants arrived, they were screened for participation through temperatures checks and checking with them if they had any flu like symptoms, and hands sanitized before they could be seated.

v)   The researcher would welcome the participants and give an overview of the purpose of the FGD. Information to guide the discussion was communicated including a request not to have side conversations, one person speaking at a time and the importance of giving honest answers. Participants would then each be given an informed consent form which included participants' agreeing to have the discussions audio-recorded. The participants would be requested to ask if they had any questions before signing the consent form. In compliance with ethical principles, participants would be assured of their anonymity and confidentiality of provided information. Equally important, participants would be requested to maintain confidentiality of what would be discussed in the focus group (2). The expected duration of the discussion, which was estimated at 60 minutes, was also communicated.

vi)   The participants' age, educational attainment, parity and screening status were captured. as this information could be used to emphasise some points on direct quotations during report writing (45).

vii)   Every effort was made to ensure the comfort of participants. Polit and Beck (2017) highlight the need for qualitative researchers to gain and maintain a high level of trust with participants in order to establish credibility among those being studied and facilitate obtaining rich data (2). The previously established trust during the quantitative survey proved to be instrumental in providing a conducive environment for a rich dialogue (46).

viii)   Although encouraged to give their honest opinions on all questions, participants would be informed that they were free not to answer any questions they were not comfortable with and could excuse themselves from the discussion at any time for whatever reason without being disadvantaged in any way. In the event that any participant got emotional during the discussion given the sensitive nature of the research, they would be excused from the session, and one of the research assistants would provide counseling services since they were skilled in basic counseling given their nursing background, or refer them to the local health facility for professional support where that was indicated (37).

ix)   The FGDs were facilitated by the researcher who served the role of moderator using an FGD guide in the local language, while also taking note of the major points raised that were of particular interest in responding to the research problem. All members of the research team closely observed non-verbal interactions of the participants to supplement the verbal data.

x)   The researcher concluded the FGD by thanking the participants and providing a summary of what had been discussed to ensure that nothing had been missed.

xi)   Each participant would then be presented with a monetary incentive to the equivalent of $1USD in respect for their time.

xii)   Immediately after conclusion of the FGD, the recordings would be labelled with the study site number for identification.

xiii)   The researcher and research assistants would then compare notes, share observations and listen to the FGD audio after which the author would transcribe the recording. New avenues of questioning would be considered where that was necessary, such as adding or revising some questions, guided by how the participants would have responded. Following this, the notes would be typed before the next FGD where that was possible.

4.3.2.4 Addressing issues of sampling and non-sampling errors

The number of participants who completed the researcher administered questionnaire ranged between 32 and 90 at each study site. To address the issue of sampling error, due consideration was taken to have an inclusion criterion for the maximum variation sampling technique that included women who were very different on each of the dimensions highlighted in Step one of Section 4.3.2.1. Both typical and extreme cases were included to maximise the diversity relevant to the research question. Non-sampling error was addressed through explaining the purpose of the FGD to the participants as a follow up on the responses they had provided during

administration of the questionnaire. This was meant to minimise communication bias. It was reiterated that the relevant health and administrative offices were all in full support of the study. Participants were also advised that their responses would be treated with confidentiality.

The FGDs were conducted at community meeting places, a neutral venue unlike the administration of questionnaires that had been conducted in participants' homes. This neutrality could have promoted objectivity in responding to questions and put the participants at ease, thus being more open to the discussion. The risk of moderator bias was addressed through comprehensively covering the various aspects of the study guided by the research protocol, while making use of probes to follow up on points that had come out during the quantitative survey. This also enhanced the content validity of the FGD questions.

The above precautions addressing sampling and non-sampling errors contributed to the enhancement of the trustworthiness of FGD data. Applying framework thematic analysis in analysing data also contributed to the validity of the FGD (see data analysis in Section 4.3.2.7).

4.3.2.5 Enhancing the trustworthiness of data

In order to generate meaningful and useful results, it is crucial that qualitative research be conducted in a rigorous and methodical manner (47). Trustworthiness of a study can be established through application of the four trustworthiness criteria namely; credibility, dependability, confirmability and transferability (48). The four criteria are viewed as fundamental to evaluating the worth of any qualitative study (47). These were applied throughout all the phases of the research process in order to present a trustworthy study that demonstrates a true picture of the barriers to cervical cancer screening in Gwanda district. Trustworthiness of the study was addressed as described below.

i)   Credibility

       Credibility corresponds to internal validity and is concerned with the extent to which the research methods engender confidence in the genuineness of the data and its interpretation (2). The author is a community health nurse with a post graduate qualification in Public Health. She completed a module on integration of qualitative and quantitative research methods during her post graduate studies. In addition, the project co-supervisor is a qualitative research expert who provided guidance to the study and ensured that rigour was applied in the conduct of the qualitative component of the study. In addressing credibility, stratification and maximum variation sampling were used to select a wide range of FGD participants. This approach served the purpose of data triangulation. Individual viewpoints could be verified against others thus ultimately contributing to the construction of a rich picture of the barriers to cervical cancer screening based on the contributions of a wide range of women (49). Moreover, the use of two qualitative data collection techniques (FGDs and in-depth interviews) and the quantitative survey allowed for complementarity, thus strengthening the credibility of the study. Further to that, study participants were drawn from both the recipients of screening services and the providers of the service to enhance contextual data relating to the research problem (see Section 4.1.1).

Collection of same information from different population groupings assisted in the triangulation of findings.

Participants were given the opportunity to decline to participate. This ensured that only those who were genuinely willing to participate and offer data freely were included. The researcher also summarised the key discussion points at the end of each FGD session to give participants the chance to confirm if the conclusions matched what they actually intended. This process is referred to as 'member checking' and is important for validation of results and increasing the credibility of the report (48). All participants confirmed that their perceptions were accurately captured and interpreted. The voices of the participants in form of quotes are used in the analysis to support the researcher's interpretation of results, thus eliminating researcher bias (50).

ii)   Dependability

Dependability relates more to reliability and is a demonstration that the findings are consistent, so that if the study were to be repeated in the same context with the same methods and same participants, similar results would be obtained (49). To achieve dependability, researchers need to ensure that the research process is logical, traceable and clearly documented to allow for its examination (47). An FGD question guide was used to ensure that each focus group discussed similar questions and consistency maintained throughout the discussion. All analyses of each FGD were submitted to the project co-supervisor for review. The methodology section describes the data collection process in detail to allow for assessment on the extent to which proper research practices were followed (49). Methodological triangulation through use of questionnaires, FGDs and in-depth interviews served as a cross check of research findings and validation of how data were collected and analysed (50).

iii)   Confirmability

Confirmability is the qualitative researcher's comparable concern to objectivity. This is applied through an examination of the research process to verify that the findings, interpretations and recommendations are supported by data, and not shaped by the preferences of the researcher (49). As in credibility, confirmability was achieved through an audit trail and data and methodological triangulation to minimise researcher bias (2,50). The choice of the mixed method approach and use of the questionnaire, FGD and in-depth interviews as data collection methods over other methods were justified. The researcher also ensured that data collection processes were consistent with the protocol in order to generate accurate and relevant data. It is a known phenomenon that a researcher's background, perceptions and interest in the study process may influence their research project (50). The researcher tried to be as neutral as possible in the collection, interpretation and presentation of data and allowed the research objectives and conceptual framework to guide the research process. In addition, researcher reflexivity was applied through use of a reflective journal to reflect on, interpret and plan data collection and analysis (2,50). This introspection is important for control of researcher biases (50). The researcher's self-reflection about their position as a community health practitioner and the potential

beliefs and attitudes on the research problem played an important role throughout the study. However, the role of researcher provided the platform for objectivity and detachment from the research setting.

iv)   Transferability

Transferability is a form of external validity which is concerned with the extent to which the findings of one study can be applied to other settings (47). To allow for transferability, a sufficiently thick description of the phenomenon being researched should be provided (47). This allows stakeholders to have a proper understanding of the problem in context and judge for themselves if they can transfer the findings to similar settings (51). In this study, transferability was addressed through keeping a record of all the steps that were taken to arrive at a decision during analysis of data. Findings of broad trends from this study could be attributed to other similar communities, subject to affirmation through triangulation with other quantitative data sources. Drawing from the findings and recommendations of this study, some components in the delivery of cervical cancer screening could be improved to increase access of the service to more women in Gwanda district and similar settings.

4.3.2.6 Ethical considerations

The Stellenbosch University and MRCZ research policies relating to human participants were adhered to when conducting FGDs. Ethical clearance to conduct the study was sought and provided by both the Health Research Ethics Committee (HREC) of Stellenbosch University and MRCZ (see Section 4.3.1.6). The provincial and district health authorities, Rural District Council and Municipality of Gwanda all gave their permission for the study to proceed. Meetings were also held with the community gatekeepers in the study wards to explain the study purpose and processes in detail in order to secure their support for the smooth flow of the study. At each FGD, the researcher provided participants with information on the purpose of the study and how they had been selected for the qualitative phase out of all the women who had participated in the quantitative survey. Information about the study was also provided in the written informed consent form including the clause that the discussion would be audio-recorded. No coercion was used to entice the selected women to participate. At the conclusion of the FGD, each participant was given an equivalent of $1USD as a token of appreciation for the time they had taken to attend the FGD. This was in compliance with MRCZ policy guidelines. The information was only disclosed at the end of the discussion to dispel any notions that the token could have been an inducement if this had been communicated earlier. Women who were willing to participate provided their written informed consent before the discussion began.

The FGD participants' privacy was protected through keeping their responses confidential and anonymous. This information was communicated to them at the beginning and at the end of the discussion. Names were not indicated in the FGD notes. On the contrary, participants were each assigned identification numbers for the demographic data collection form. This assisted in assessing the degree of variability among participants. Participants were informed that they were not obliged to participate in the discussion if they did not wish to, and that they did not have to remain through the session if they felt the need to withdraw (32), especially if they considered the issue being discussed as too sensitive. The same measures were applied to protect the

anonymity, confidentiality and privacy of participants who were involved in the pretesting of the FGD question guide. All precautionary measures to minimise the transmission of COVID-19 were observed during data collection to protect the participants from harm.

To protect the audio- recordings from unauthorised access, the author keeps them in their password protected laptop. The University guidelines are not specific on the length of time required to store data after completion of the study but only indicates that data can be stored for as long as it is required. Accordingly, the recordings will be kept for a period of 10 years for the purposes of verification and for future reference should the researcher have the motivation to conduct further studies on the topic in future.

4.3.2.7 Data analysis

Qualitative data analysis entails summarising large quantities of collected data and presenting the results in a manner that communicates the most important features that bring out meaning on how the research questions have been answered (52). The approach to data analysis needs to be articulated in a systematic, sequential and verifiable manner that provides a trail of evidence to increase the extent of dependability and confirmability of findings (53). Unlike the analysis of quantitative data, qualitative data analysis does not take place in a linear form, but occurs concurrently with data collection (44). This allows for gauging of data saturation and adding an angle to the line of questioning, if necessary, based on the responses from the previous focus group.

There are a number of approaches to the analyses of qualitative data which include content analysis, thematic analysis and theoretical analysis (52). Most researchers use a combination of approaches depending on the overall aim of the analysis (52). This study employed thematic analysis, defined by Braun and Clarke (54) as a method of identifying, analysing, organising, describing and reporting themes found within a data set to produce trustworthy and insightful findings. This analysis method was chosen because it provides a highly flexible approach that yields a rich and detailed account of data, while also useful for examining the perspectives of different research participants, and has the ability to generate unanticipated insights (54). The key stages applied in the analysis are illustrated in Figure 4.4.
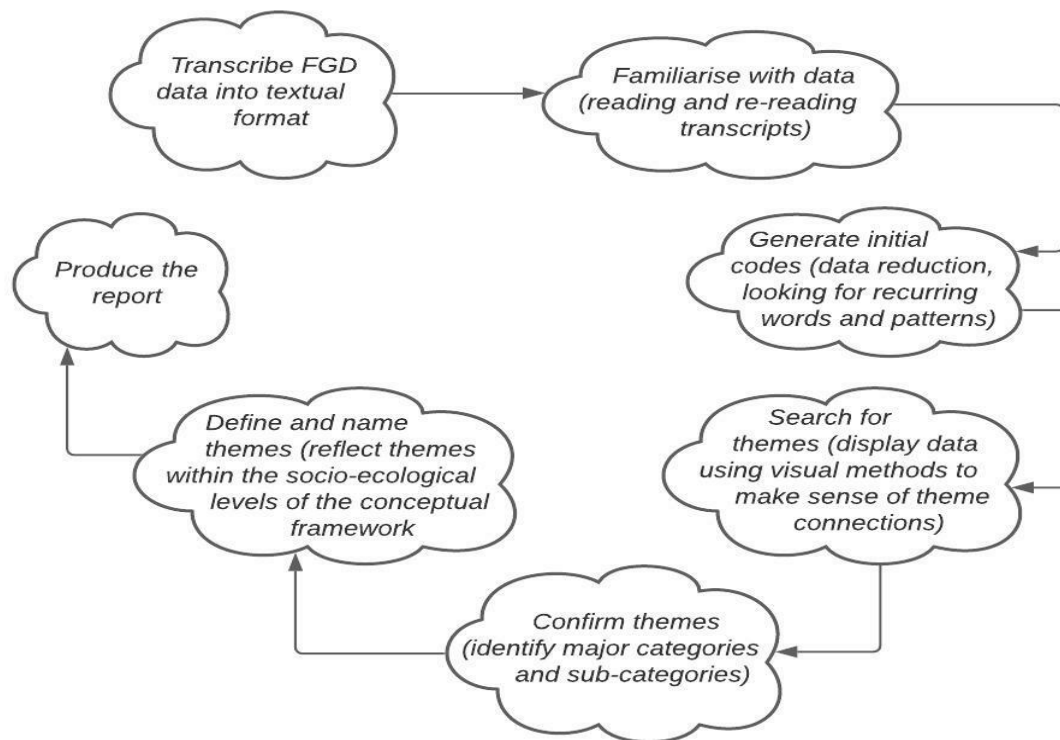
Figure 4.10: Focus group discussion data analysis flow chart

As highlighted in Section 4.3.2.3, audio-recordings of the FGDs were transcribed and typed after each session. The typed data was then subjected to thematic analysis. Deductive and inductive techniques were combined and used in the analysis, with the deductive method being the dominant through application of the conceptual framework that grounded the study. A deductive approach involves coming to the data with some preconceived themes based on theory or existing knowledge, while an inductive approach allows the data to determine the themes (55). Six key steps suggested by Braun and Clarke (56) were applied in the analysis of the data.

i)   Familiarisation with the data

The labelled recordings of the FGDs were transcribed verbatim from the local Ndebele language to English. This entailed going through all the data from the entire interviews, writing it down word for word and typing it up. Transcription included everything that was said and done during the discussion. Responses from all the FGDs were copied and pasted into one document for ease of coding although they were distinguished from each other. The researcher personally did all the transcription to familiarise with the data, as well as ensure consistency and quality in the transcription procedure. The typed transcripts would then be actively read repeatedly to familiarise with the data and search for meaning and patterns across the data.

ii)   Generating initial codes

Key words relating to particular issues were noted for each question. The key words became the codes. Coding refers to taking the data apart and creating meaningful groupings (56). This was done using Web ATLAS.ti, a computer assisted qualitative data analysis software. All commonly recurring words that fitted into a particular code for each question were collated and colour coded. As with the transcription, the author personally coded the entire data set as recommended by Polit and Beck (2) to ensure the highest possible consistency across the FGDs. For researcher triangulation, the project co-supervisor who is an expert in qualitative research reviewed the coding and provided feedback so that consensus was reached on the codes. Iteration was used while coding in order to group related codes together. As warned by Castlebury and Nolen (57), data coding was hard work and very time consuming. Notwithstanding, coding was done in a systematic manner as it is foundational to the data analysis process.

iii)   Searching for themes

After all the transcriptions had been coded, the different codes were analysed and considerations made on combining similar ones into the same potential themes (56). The process was iterative as codes could be moved backwards and forwards in an endeavour to fit them into their most defining themes. Relationships among major categories and sub-categories were identified. This interpretation of the codes ended up with superordinate and its subordinate or related themes that aligned with the conceptual framework.

iv)   Confirming themes

All the key words for each potential theme determined a priori from the conceptual framework were re-read and evaluated to determine if they formed a coherent pattern. Following this analysis, some of the subordinate themes which lacked adequate data to support them were merged with other themes with the nearest meaning to them while others were further broken down into separate themes. Again, the whole data set was read to ascertain congruency of the themes with the data set. This repeat process helped in coding any data that could have been missed during the earlier stages of coding (56). Interpretation of each code was done to identify themes related to the second, third and fifth research objectives. This process resulted in distinct themes that could well explain the data.

v)   Defining and naming the themes

Finally, distinctive themes were fitted into the conceptual framework under individual, interpersonal, community and health system related levels of influence. At this stage, it was identified which research objective the themes related to in its contribution to answering the research questions. Findings of the study were reflected within the socio-ecological levels of the conceptual framework.

vi)   Producing the report

A description of the themes has been used as the foundation for the write up of this research report. Themes within the data are appropriately reported including relevant and key verbatim quotes that

were selected to support the findings. This component of member checking is important for elimination of researcher bias, thus ensuring credibility of the study results (50).

There are limitations to the use of thematic analysis. Holloway and Todres in Nowell (47) argue that the flexibility in thematic analysis can lead to inconsistency and a lack of coherence when developing themes derived from the research data. Consistency and cohesion in this study was addressed through application of rigour in generating the codes and matching them to the conceptual framework themes during the data analysis process. The personal coding of data by the researcher ensured consistency which was enhanced by inter-rater reliability from the co-supervisor of the project. While predetermining the themes can introduce researcher bias and undermine the validity of the study, Castleberry and Nolen (57) maintain that if a previous coding scheme has been used in similar studies, it is prudent to use it as a starting point and modifications made as required by the data set. Similarly, theme generation for this study was guided by the conceptual framework which enhanced consistency in the coding process.

4.3.3 In-depth interviews

An in-depth interview is an intensive, open-ended and discovery oriented data collection method that deeply explores a particular point of view or perspective from a stakeholder in order to obtain detailed information about a particular subject (12). In-depth interviews were an important element for this study, significant for validation of findings from the quantitative survey and FGDs, while also providing the opinions, experiences, feelings and insights (12) of the service providers on the screening programme to address the fourth and fifth study objectives.

In-depth interviews can uncover valuable insights that enable the researcher to discover the 'real story' from knowledgeable individuals (12) . The likelihood of obtaining more comprehensive and genuine information is also increased since participants are most likely to open up on a one-to-one basis than in a group. The disadvantages of using in-depth interviews however are that the analysis can be time consuming and challenging since qualitative data can be ambiguous (10,12). In-depth interviewing also requires a high level of training and skill to reduce the possibility of bias (12).

Despite these disadvantages, the method was still necessary to achieve a holistic picture of the barriers to cervical cancer screening in the study district. The researcher used her interviewing skills from a previous study conducted during her post graduate studies. For the analysis of data, guidance was provided by the project co-supervisor who is an expert in qualitative research.

Four steps are suggested in the process of conducting effective in-depth interviews namely; developing a sampling strategy, writing an in-depth interview guide, conducting the interviews and analysing the data (10).

The same steps were applied in the design and conduct of the in-depth interviews for this study. These are discussed in Steps one to four of Section 4.3.3.1 below.

4.3.3.1 Designing In-depth interviews

Step 1: Developing a sampling strategy

Identifying the right people who would provide useful information to answering the research questions and giving further detail on the research inquiry (12) was an important first step in organising in-depth interviews. As with FGDs, it was necessary to select a diverse mix of participants (10) with various responsibilities in the provision of cervical cancer screening services. This would provide different insights into the existing barriers to cervical cancer screening in the district. Purposive sampling was used to select just those cadres from all levels of the health system in the district. In the preliminary meetings with the district health authorities, a list of cadres that were involved in the screening programme clinically and through health education and awareness creation was availed to the researcher as potential recruits for in-depth interviews.

At the community level, VCWs and Health Promoters are engaged in creating awareness on cervical cancer and screening. Although not providing screening services, nurses at primary health facilities play the role of education and motivating women for screening and referring them to the provincial hospital to access the service. At the provincial hospital, all departments that provide health services to women are expected to give health education on cervical cancer and screening and refer interested well informed women to the VIAC clinic. The district and provincial hospital health executive teams provide oversight in the implementation of the VIAC programme. It was with this background information and under guidance of the district health authorities that health providers in charge of the various units were purposively selected for in-depth interviews.

Step 2: Developing an in-depth interview guide and pretesting the instrument

An in-depth interview guide should be structured in a way that ensures that important questions are asked during the interview (10). Consequently, the content of the questions should be determined by the research objectives (10). Therefore then, the fourth and fifth research objectives which sought to determine community and health system factors that heath providers perceived as barriers to screening and to examine the strengths and facilitators that could be incorporated into the screening programme, focused the question content (see Appendices 19 and 20). The in-depth interviews focused on community knowledge and perceptions on cervical cancer, accessibility of cervical cancer screening services, strategies for demand creation, challenges to accessing screening services and participants' opinions on strategies that could be applied to increase the uptake of screening. In line with the recommended guidelines for developing good questions (58), the guide included questions directly related to the research objectives, and were kept brief to draw the maximum in-depth input from each participant. The precise questions also allowed participants free flow of thought, while also giving the researcher opportunity to reorder the questions to better suit the flow of the discussion (10).

Open ended questions were used to encourage an expansive detailed response from the participants. Although the questions were kept brief and simple, effective probes were used to encourage addition of detail and clarification of remarks made earlier. As a rule of thumb, the questions were ordered in a way that moved from the general which set the tone, to the more focused specific questions that required more considered responses (10,58).

As with the FGD guide, the interview guide was evaluated by a senior doctor working in the VIAC clinic of a central hospital to determine if the questions adequately measured all the concepts required to answer the research questions (59). In addition, the instrument was pretested on two nurses: one from a rural health facility and the other from the provincial hospital that provides VIAC services. This was to determine the time it could take to complete the interview, give the researcher opportunity to practice their interviewing skills and also ascertain if there were any ambiguous questions and if the responses could easily be interpreted in relation to the required information (59). The guide was further refined after the analysis of quantitative data and the following modifications made:

i)   Question one which initially read "how long have you been involved in the cervical cancer screening programme' was modified to 'could you tell me about your experience in the cervical cancer screening programme'.

ii)   Question which read 'what type of cervical cancer screening services do you have in the district' sounded ambiguous and was refined to 'what cervical cancer screening services are available in the district'.

iii)   On question four, the part 'including health workers' was removed from the question which initially read 'what are your views on women's practices in relation to screening including health workers'. Since the same questionnaire was used for all levels of health workers, it could have been difficult for those at the community and primary health facility levels to respond to that.

iv)   Question six was rephrased from 'what are the cervical cancer screening needs, challenges and barriers facing women in Gwanda district' to 'why do you think women in the district do not adequately utilise free cervical cancer screening services'

v)   Question seven was reworded from 'in your opinion, what measures can be taken to increase utilisation of screening services in the district' to 'how do you think these barriers can be overcome'

vi)   Finally, the last question which read 'Is there anything else you would like to comment on' was added to solicit for other information that could have been overlooked.

With these corrections, both participants agreed that the questions were clear, and the in-depth interview could be conducted in 30 to 45 minutes.

Step 3: Conducting the interviews

The in-depth interviews were semi-structured and had guiding questions although the flow of the responses determined the order in which the questions were asked. It is advisable to conduct in-depth interviews in an environment and time best suited to the participant so that the interview is not rushed and the greatest benefit achieved (10). Accordingly, through the facilitation of the health institution authorities, participants were allowed time during their normal working hours to participate in the interviews to avoid causing them any inconvenience. The following rules of in-depth interviewing were observed (10,58):

i) A good rapport was established with participants who from the outset of the interview were made to understand that they were the ones with the knowledge and experience on how the cervical cancer programme was being implemented in the district and the researchers were interested in learning from them. This was to motivate objectivity in their responses.

ii) Active listening where the researcher allowed participants to speak freely although guiding the conversation to cover important issues that would answer the research questions. The researcher would rephrase what had been said to ensure that they had completely understood what the participant intended.

iii) Flexibility was exercised with the researcher remaining open to slight deviations from the subject which would then necessitate reordering of the questions or coming up with other questions to follow on the leads if useful information was being provided. It was thus necessary to be very familiar with the question guide to make it easy to navigate through it as was necessary.

iv) The researcher made the interview as interactive as possible by being conversational although they listened more than they spoke and made smooth transitions from one subject area to the next.

v) Responses were audio recorded. Non-verbal behaviours were observed and recorded as they occurred. The researcher also recorded their views and feelings immediately after the interview as a way of self-reflection. This is important in the analysis of data to enhance confirmability of findings.

Specific detail on the data collection procedures follows in Section 4.3.3.3.

Step 4: Analysing the data

Analysing in-depth interviews entails reviewing the interview records and taking notes to keep track of the findings that are emerging (10). This includes transcription of the recordings and organising the notes either by question or by theme (10,58). When organising the transcripts by question, the notes are recorded as answers to the questions whereas when organising the notes by theme, comments that speak to specific predetermined themes, or themes that emerge in the course of the interview are grouped together. In this study, both strategies were used. The analysis was first organised by question followed by thematic analysis. The data analysis process is discussed in detail in Section 4.3.3.7.

4.3.3.2 Sample size

The sample size was guided by literature which suggests that saturation is the key to quality qualitative research based on the scope of the study, nature of the topic, the amount of useful information obtained from each informant as well as the quality method and study design used (60). A sample size of 25-30 in-depth interviews is generally accepted as the estimated point at which saturation is likely to occur (61). However other evidence suggests that data saturation can be achieved after only 10-15 in-depth interviews (10,58). Following these guidelines, a total of 25 in-depth interviews were conducted. Seven key informants consisting of the Consultant Obstetrician and Gynaecologist, Hospital Matron, Community Health Nurse and the doctor and three nurses manning the provincial hospital's VIAC clinic were invited to participate. In addition to the seven key informants, six maternal health service providers were also recruited as follows: one each from the hospital's Family Health Services unit, Maternity ward, Opportunistic Infections Clinic (OIC), Outpatients Department, Paediatric and Female wards. From the primary health level, one nurse from each of the five primary health facilities in the study wards, and five CHWs and two Health Promoters from the rural and urban settings were also recruited, respectively.

4.3.3.3 Data collection procedures

For each study site, in-depth interviews were conducted soon after the FGDs as the last step in the data collection process. In-depth interviews enabled the researcher to uncover more detailed and in-depth information (58) to corroborate and complement the findings from the FGDs, while getting the perspectives of service providers on the cervical cancer screening programme in the district.

i)   Prior to commencing quantitative data collection, the District Health Executive had provided the researcher with the names and telephone numbers of nurses-in-charge of primary health facilities in the study wards. In turn, the nurses-in-charge of the primary health facilities linked the researcher with the VCWs and Health Promoters in the study villages and suburbs. The research team had worked with these cadres during collection of quantitative data. Consequently, the same nurses, VCWs and Health Promoters were purposively sampled and recruited to participate in in-depth interviews. A week before the scheduled dates for FGDs and in-depth interviews, various health institution authorities, VCWs and Health Promoters were phoned and advised about the interview dates while also checking their willingness and availability to participate. The potential participants were again reminded a day before the interview dates.

Similarly, staff in charge of the various clinical and administrative departments involved in the screening programme at the provincial hospital was identified through purposive sampling aided by the Hospital Executive team who requested them to assist the researcher by providing the requested information. The nurse found in charge of each selected unit at that time was interviewed. At each contact, information on the purpose of the study, approval of the study by the institution's authorities and the voluntary nature of participation were

explained. Participants were also informed of the expected duration of the interview (58) of 30 - 45 minutes to assist them in providing informed consent.

ii)   Appointments with the Administrators were made for times that were convenient to them (58). This prevented work disruptions and inconvenience in their busy work schedules.

iii)   As with the FGDs, all COVID-19 protocols to minimise transmission were observed. The researcher would introduce themselves and thank the participants for agreeing to be interviewed. The purpose of the study would again be explained, and participants assured of their anonymity and the confidentiality with which the information they would provide would be treated. This information was important to emphasise since participants could be uncomfortable to disclose information about their institutional practices. A request would be made to audio-record the interview to ensure that all salient issues from the participants' responses were captured (10). Recording also allowed the researcher to focus on their interaction with participants and avoid being distracted by taking comprehensive notes (8). Any questions arising would be addressed before participants signed the informed consent form.

iv)   To balance off the power relationship, participants were reminded that they were the experts in the research area and the researcher wished to learn and draw important information from them, while remaining in control of the interview (8). Making the intent of the study very clear and assuring participants of the protection of their privacy was meant to garner mutual trust.

v)   The researcher personally conducted the interviews using the interview guide developed in Step 2 of Section 4.3.3.1 to ensure consistency in the questioning technique (2), which would also contribute to the trustworthiness of the study.

vi)   The interview setting was organised in a way that reduced interference from non-participants who could disrupt the flow of the interview (10). For VCWs and Health Promoters, the interviews were conducted at community meeting places at the conclusion of the FGDs while private rooms or offices were used for institution-based health providers.

vii)   While the researcher allowed a natural flow of information from the participants, they would control the discussion such that no time was spent on issues irrelevant to the research questions (10).

viii)   Mental notes were written down immediately after the interviews to ensure the highest possible confirmability of data and to prevent information loss (2) as a way of enhancing trustworthiness. The recordings were labelled with the interview identification number and kept away in a safe place if not being used in compliance with ethical requirements.

4.3.3.4 Addressing issues of sampling and non-sampling error

The precision of an estimate depends on both variability of the data and the sample size (21). If data obtained is within a small range, there is small underlying variability in the measurement and the estimate will be more

105

precise (21). To minimise sampling error, it was decided to have a sample that provided an accurate representation of the target population. Health providers of cervical cancer screening services that represented a broad range of perspectives were purposively selected (8). Participants were drawn from all levels of health workers in the district. This included community-based health workers, primary health level nurses, hospital level nurses in the departments dealing with women, administrators involved in the decision-making processes for the cervical cancer screening programme and the nurses and doctors directly involved in VIAC screening and treatment. Only persons in charge of those units at that particular time were selected and since there is only one such person in each unit and just one VCW and Health Promoter in each village and suburb respectively, selection bias was eliminated. As large a sample as possible was allowed up until data saturation was achieved, the point at which continuing with the interviews would not have added any new information (2).

Selection of potential participants for in-depth interviews through the authorities of health institutions helped eliminate non-response bias. This was because participants were assured that their supervisors approved of the study. Equally important, pre-interview contact of institution authorities before the scheduled interview dates elicited their cooperation (29). Introduction of bias in the responses was addressed by not revealing the contents of the questionnaire and FGD guide to the in-depth interview participants. This could have influenced how the health providers would have responded, in an endeavour to align their responses with those of the women.

Measurement error is the difference between the information generated by the interviews and the information required by the researcher (21). To address this error, due care was taken in developing questions that would attract appropriate responses to answer the research questions. The question content was assessed by the project co-supervisor and a VIAC specialist at a central hospital. The instrument was also pretested on cadres with the same characteristics as the target population. This helped refine the instrument to measure what it was meant to and assisted the researcher to perfect their interviewing skills that would draw out the intended information from participants. Possible sampling and non-sampling errors were thus addressed to enhance trustworthiness of the in-depth interview data, discussed in detail in the next Section 4.3.3.5.

4.3.3.5 Enhancing trustworthiness of data

The same quality criteria of trustworthiness discussed in Section 4.3.2.5 under FGDs namely; credibility, transferability, dependability and confirmability apply to all qualitative designs (62) and were applied for in-depth interviews in this study. According to Lincoln and Guba (48), trustworthiness simply poses the question 'can the findings be trusted?'. This section discusses in short how trustworthiness was ensured for in-depth interviews. It should be noted that most aspects addressed are similar to those already highlighted during the discussion of trustworthiness in FGDs.

Credibility, described as the confidence placed in the truth of the research findings (48), was enhanced through use of different data collection methods and data sources. Method triangulation made use of researcher-administered questionnaires, FGDs and in-depth interviews as methods for collecting data on barriers to

cervical cancer screening in Gwanda district. Use of multiple methods ensured complementarity and cross checking of data across the different methods and increased the confidence placed in the findings (62). Data was collected from multiple sites (community, rural and urban primary health facilities, hospital departments, VIAC clinic), and from different health cadres (VCWs, Health Promoters, nurses from primary health facilities, hospital nurses, VIAC doctor, VIAC nurses and decision makers in the VIAC programme). Furthermore, data were analysed independently by the researcher and checked by the co-supervisor, after which the interpretations were compared. If interpretations were different, discussion between the two were held until the most suitable interpretation best representing the meaning of the data were found (62).

Transferability concerns the aspect of applicability of study findings to other settings (48). This quality criterion was enhanced through giving a comprehensive description of the research process including the context in which the study was carried out, the category of the participants, sample size, sampling technique and the interview procedure. This thick description should enable the readers of the research report to assess for themselves if the study findings are transferable to other specific settings (62).

Dependability includes the aspect of consistency in the process through which research findings are arrived at (48). To enhance this quality criterion, the data process adhered to the research protocol and analysis of in-depth interview data was conducted in accordance with acceptable procedures for thematic analysis (10,47). Finally, the confirmability of findings was also addressed. This component of trustworthiness brings out the aspect of neutrality in the interpretation of data, based on the data generated from the study and not on the preferences of the researcher (62). Documentation of the research process including transcription notes and all processes leading to the interpretation of data are available and will be stored safely for as long as they can be used, in line with Stellenbosch University's ethical guidelines. This created an audit trail from which the transparency of the research process can be evaluated (62).

4.3.3.6 Ethical considerations

The same ethical guidelines applied in Sections 4.3.1.6 and 4.3.2.6 in relation to self-administered questionnaires and FGDs were also applied to in-depth interviews where applicable. The guidelines are related to obtaining ethical approval, voluntary and informed consent, maintaining anonymity and confidentiality, protecting participants from harm and data protection. Precautionary measures to minimise the risk of Covid-19 transmission were also applied.

More specific to the in-depth interviews, since health providers were expected to discuss challenges related to their work environment, they could be apprehensive about the negative consequences if they put their units in bad light. This could result in their giving subjective responses. Consequently, participants were informed that all measures to protect their privacy, confidentiality and anonymity would be taken. While a summary of the research findings would be availed to the stakeholders, there would be no disclosure of specific participant responses. This information was communicated to the participants during pre-interview contacts, at the beginning of the interview and at the conclusion of the interviews.

Participants were made to understand that participation was completely voluntary, and they had a choice not to participate in part or at all in the study. They could also refuse to answer questions they were not comfortable with. Besides, they could withdraw at any stage of the interview without being penalised or disadvantaged in any way.

4.3.3.7 Data analysis

As mentioned in Step 4 of Section 4.3.3.1, in-depth interview transcripts were initially organised by question, after which analysis was done thematically based on the same steps employed in the analysis of FGD data in Section 4.3.2.7. The audio-recordings were played back and each word written as was spoken in the interview (8). The researcher personally transcribed the interviews to ensure that non-verbal behaviours and interactions that could be relevant to the analysis such as the emphasis placed on some statements were captured (8). The typed transcriptions were copied and pasted into a single document that served as a master document from which participants' comments were sorted and coded (10).

Responses for each interview were started on a new page with the interview identification number and participant's position and level of operation indicated (10). This personal information was used in the interpretation of data to identify the different views on the barriers to cervical cancer screening between health cadres and level of operation. The information would however not be linked to the participant as highlighted in Section 4.3.3.6.

After reading and re-reading the systematically sorted transcripts, codes were generated, and themes derived (57). Interpretations were then made, and conclusions drawn in response to the purpose of the study.

4.4 Conclusion

In this chapter, a detailed description of the research design and methodology was presented including the motivation for their choice. Operationalisation of the sequential mixed method approach was described. This consisted a quantitative survey that assessed women's knowledge, attitudes, and practices on cervical cancer screening and identification of barriers to screening. A researcher-administered questionnaire was used to collect data that were analysed using descriptive and inferential statistics. The qualitative method used FGDs with women purposively sampled from the quantitative survey using maximum variation sampling. This method further explored the barriers to screening at community level. In-depth interviews were then conducted with health providers at different levels of the health system. This determined barriers to screening from the perspectives of health personnel. Framework thematic analysis was used to analyse qualitative data. Strategies for enhancing trustworthiness of data and the researcher's compliance with ethical requirements were discussed. The outcomes of data collection and analysis processes are presented in the next five Chapters.

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111

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SECTION B: RESULTS

Chapter 5: Women's knowledge, attitudes, and practices on cervical cancer screening in Gwanda district of Zimbabwe: A cross-sectional survey

This chapter addresses the second study objective and has been written as a manuscript ready for submission to the journal *BMC Women's Health*.

Abstract

Background: Cervical cancer is the leading cause of all female cancers and deaths in Zimbabwe mainly due to lack of awareness, knowledge and understanding of the disease, and underutilisation of cervical cancer screening services. This study aimed at assessing the knowledge, attitudes, and practices of women on cervical cancer screening for generating baseline data to inform strategy development on increasing knowledge, and improving attitudes on cervical cancer for improved uptake of screening.

Methods: A household-based descriptive and analytical cross-sectional survey was conducted in Gwanda district, Zimbabwe, using a researcher-administered questionnaire to collect data. A sample of 609 women aged 25-50 years was selected using multistage random sampling. Data were analysed using STATA version 15.1. The Pearson Chi-square and Fisher's exact tests were used to test the significance of associations between participants' socio-demographic characteristics and their knowledge, attitudes, and screening status.

Results: Awareness of cervical cancer and the screening programme was high among women (80.79% and 85.06% respectively). Similarly, women had positive attitudes towards screening (58.46%). However, specific knowledge on the aetiology, risk factors, signs and symptoms and preventive measures of cervical cancer, and knowledge related to screening was limited among most women, 80.28% and 69.88% respectively. Likewise, uptake of screening was low (30.05%). Major reasons for not screening were lack of knowledge (21.36%) and inadequate knowledge (17.14%) about screening, while the reasons for screening were self-motivation (44.81%) and recommendation by a health worker (36.61%). Socio-demographic characteristics significantly associated with knowledge about screening were place of residence (p = 0.009), educational attainment (p = 0.017) and employment status (0.009). Knowledge on cervical cancer and screening were both highly significantly associated with screening uptake (p <0.001).

Conclusions: Our findings revealed poor knowledge on cervical cancer and screening particularly in rural areas and among women who were less educated and unemployed. Inadequate knowledge of cervical cancer could be one of the factors contributing to the underutilisation of screening services. Future studies should focus on interventions to improve women's knowledge on screening, which has the potential of increasing screening coverage and subsequently decreasing cervical cancer incidence and mortality.

Keywords: cancer, cervical cancer, knowledge, attitudes, practices, Zimbabwe

1.0 Background

Cervical cancer is a female malignant neoplasm that results from an uncontrollable growth of cells in the area between the endo and ecto cervices, referred to as the transformation zone (1). Following infection, the cervical epithelial cells initially transform into precancerous lesions that in the absence of treatment, may progress to cancer (2). Persistent infection with carcinogenic Human Papillomavirus (HPV) types is the virtually necessary but not sufficient cause of cervical cancer (3). Significant cofactors that influence the risk of progression from cervical HPV infection to the development of cervical cancer include immunosuppression particularly due to human immunodeficiency virus (HIV), smoking, multiparity and prolonged hormonal contraceptive use (1,4). Other risk factors include commencing sexual activity at a younger age, multiple sexual partners, having a high-risk sexual partner, family history of cervical cancer (1), poor nutrition (1,5) and poor sexual hygiene (6).

Cervical cancer is a grave threat to women's health and lives and worldwide, one woman dies of cervical cancer every two minutes (7). Globally, the disease ranks as the fourth most occurring and fourth leading cause of cancer deaths in women (4). An estimated 570 000 new cases and 311 000 deaths are reported each year (3), with nearly 90% of these deaths occurring in low and middle-income countries (8). Sub-Saharan Africa and South-Eastern Asia contribute the highest towards the global incidence and mortality rates (4) that are projected to increase by 21% and 27% respectively by 2030 (8).

Zimbabwe is one of the high cervical cancer burdened countries in the world (9). In this Sub-Saharan African country, cervical cancer is the leading cause of all female cancers and cancer deaths, and accounts for an annual 3 186 new cases and 2 151 deaths (10). This translates to high-standardised incidence and mortality rates of 62.3 per 100 000 and 46.0 per 100 000 women-years respectively (3). Most of these women are regrettably in the 15 - 44 year age group, the peak of their productive lives (10). The main reasons for the high incidence of cervical cancer are lack of awareness, knowledge and understanding of the disease, and underutilisation of cervical cancer screening services (9).

Cervical cancer is however the most preventable type of human cancer because of its slow progression and early detection of precancerous lesions by screening that can be cured if treated adequately (8,11). The World Health Organization (WHO) advocates for a comprehensive cervical cancer prevention and control approach that is designed to reduce the incidence, morbidity and mortality of cervical cancer through scientifically proven primary, secondary and tertiary prevention interventions (12) that entail:

o   prophylactic HPV vaccination of girls aged 9-13 years to prevent HPV infection, and interventions aimed at the prevention of all co-factors that increase the risk of cervical cancer development
o   regular cervical cancer screening aimed at early detection and treatment of precancerous lesions to reduce the incidence and mortality of cervical cancer and,
o   effective treatment of invasive cancer including palliative care for the improvement of survival rates (13).

In Zimbabwe, the national screening programme based on Visual Inspection with Acetic Acid and Cervicography (VIAC) was launched in 2010, and is offered for free in the public health sector (9). However,

based on the last demographic and health survey conducted in 2015, the national cervical cancer screening rate is low, estimated at 13% against a set target of 50% by 2020 (9). This is despite that 79% of women aged 15-49 years have heard about cervical cancer at some point (14), which could be a reflection of a knowledge deficit on specific areas that could inform screening.

In its endeavor to effectively address the prevention and control of the disease, the government developed its first Zimbabwe cervical cancer prevention and control strategy (ZCCPCS) in 2015, geared to the full implementation of all the pillars of cervical cancer management (9). HPV vaccination of girls in the 10-14 years age group in and out of school was launched in May 2018, and screening services are currently accessible from all central, provincial and district hospitals and at some mission and private clinics (9). This has been enhanced through government collaboration with other implementing partners to increase the capacity for cervical cancer information dissemination and screening. As the Ministry of Health and Child Care (MOHCC) Ambassador, the country's First Lady also embarked on a massive cervical cancer awareness programme through her non-profit organisation the Angels of Hope Foundation mobile clinic in 2018. The goal is to have as many women as possible screened, particularly in the rural areas.

Although there has been a progressive increase in the number of screening sites including outreach services in Zimbabwe, more still needs to be done as utilisation rates for this service remain low (15). Evidence suggests that there is a strong interplay between knowledge and attitudes on cervical cancer and the resultant health-seeking behaviours (16). Fitzpatrick and colleagues however argue that low rates of screening are not only due to lack of knowledge, but are also impacted by lack of available resources for screening (17). Women's attitudes towards cervical cancer and screening are equally important in the decision for screening (18). Alluding to this, Kaufman and colleagues refer to a complex nature of dynamics that come into play at the individual, interpersonal, community and health system levels to influence behaviour (19). It is therefore essential to characterise women's knowledge, attitudes, and practices as the first step towards effective implementation of the country's cervical cancer control and prevention strategy. Addressing any identified deficiencies could contribute to the provision of comprehensive cervical cancer management.

Several studies have been conducted on cervical cancer and screening knowledge, attitudes, and practices at various locations in Zimbabwe. Study sites from 2015 to date include a rural district in Mashonaland Central Province (20), a provincial hospital in Mashonaland Central Province (21), two urban cities in the Midlands Province (15,22), a remote rural district in Mashonaland East Province (23), a general urban hospital in Mashonaland West Province (24) and a rural district in the same province (17), and a multi-site study on young people in five provinces namely; Mashonaland West, Midlands, Masvingo, Manicaland and Harare Metropolitan (25). Findings from these studies show variable knowledge levels and screening uptake between settings, and within some aspects of cervical cancer and screening. This signifies the importance of studying specific settings to gather baseline information for crafting context-specific strategies for the prevention and control of cervical cancer.

Of the ten provinces in the country, the authors are not aware of any studies done on knowledge, attitudes, and practices relating to cervical cancer in the three Provinces: Bulawayo Metropolitan, Matabeleland North, and Matabeleland South. This motivated this study which focused on one district in Matabeleland South Province that also ranks among the three least knowledgeable and least screened provinces in the country (17). This study therefore aimed at assessing the knowledge, attitudes and practices on cervical cancer and screening among women aged 25-50 years in a district that comprises urban, rural, and mining communities.

2.0 Methods

2.1 Study design and setting

This was a community-based cross-sectional survey conducted between June-July 2019. The study was carried out in 10 of 34 electoral wards of Gwanda District that is situated in the dry and drought-prone Matabeleland South Province in South West Zimbabwe. Gwanda district is demarcated into 24 rural wards which include mines, and 10 urban wards, each represented by a Councillor (26). A ward is an administrative area under a district that on average comprises 10 villages, with each village consisting of 100 households on average (27). Gwanda district has an estimated population of 136 005 of which 69, 658 is female, with 35, 528 (51%) in the 15-64 years age group (28). The vast majority of the population lives in the rural areas which roughly consist of 26,773 households compared to 5,656 in Gwanda town, the capital of Matabeleland South Province. The primary sources of income for the peasant population are communal farming, cattle ranching, brick molding, irrigation farming, gold panning, vending and cross-border trading (27). Most women are also engaged in community income generation projects.

Cervical cancer screening services in the district are provided by Gwanda Provincial Hospital. This is a 205 bedded tertiary institution and the first health facility in the province to provide cervical cancer screening services in 2013. Gwanda Provincial Hospital serves as a referral center to two mission hospitals and 27 primary health facilities in the district, as well as six districts in the province. A privately run medical practice located in Gwanda town also provides cervical cancer screening at a fee.

2.2 Study population

The target population was all women aged 25-50 years, capable of providing informed consent and resident in Gwanda district for at least six months. This period was considered long enough for women to have heard about cervical cancer screening services in the district resulting from the district's implementation of the ZCCPCS, specifically on the objective which aims at raising awareness on cervical cancer screening among communities (9). Only women who reported a history of sexual activity, no diagnosis of cervical cancer, and an intact cervix were included in the study.

2.3 Sampling procedures

Multistage sampling was used in the selection of study participants. First, the 34 electoral wards were stratified according to urban, rural and mining clusters. Ten electoral wards were then selected using simple random

117

selection proportionate to strata size: three urban, six rural and one mine. Stratified random selection of one village from each of the 10 randomly selected wards was done. The list of wards and villages/suburbs was readily available from the Rural District Office and Municipality of Gwanda. The last stage in the sampling procedure was a selection of households. In the rural areas, up-to-date sampling frames were not available so, purposive sampling of households was done guided by the Village Community Workers (VCWS) who are well informed about their communities. For the urban suburbs and mine, households were selected using simple random sampling. If more than one eligible woman was found in the selected household, the participant was selected through simple random sampling.

2.4 Sample size determination

The sample size was calculated to 628 participants using the formula n $= \left[t^2 \times \frac{p \times q}{d^2}\right] \times DEFF$ (29). This was based on an assumption of a 5% relative desired precision (d = 0.05), 95% Confidence Interval (t = 2.045, linked to 95% Confidence Interval for cluster sampling), 50% knowledge on cervical cancer and screening (p = expected prevalence, and q = 1 - p, the expected non-prevalence) and a design effect of 1.5 (DEFF to account for heterogeneity between clusters).

2.5 Data collection

Selected households were visited, and women who met the inclusion criteria were recruited for the study. Data were collected from all consenting women by the researcher and three research assistants trained in data collection procedures using Mobenzi Researcher. This is android mobile application software that captures digital data offline and automatically uploads responses in the background onto a coded database from a pre-created questionnaire.

The semi-structured questionnaire was designed into five sections that elicited information on the participants' socio-demographic characteristics (explanatory variables), and knowledge about cervical cancer, knowledge about cervical cancer screening, attitudes towards cervical cancer and screening, and practices on cervical cancer screening (outcome variables). The questionnaire was developed in English and translated into Ndebele, the main local language in the study area. For consistency and quality control, each researcher had a paper-based questionnaire in the local language to refer to during the interview. The questionnaire was pretested on 20 women who possessed similar characteristics as the participants for the main study after which it was refined to correct noted flaws.

2.6 Data analysis

Data in the Mobenzi database were cleaned and survey results were directly imported into STATA version 15.1 for analysis (StataCorp Inc., College Station, TX, USA). Descriptive statistics used frequencies, proportions, median and interquartile ranges (IQR). Composite variables were created for questions assessing knowledge and attitudes using a scoring system that has been used in similar studies (18,24,30).

From the selected questions, a score of one was assigned to each correct response and a score of zero to each incorrect response. The scores were then summed up and rated. For the section on knowledge about cervical cancer, six questions some with multiple correct responses were assessed. The minimum possible score was one, and the maximum possible score 21. A score of one-ten was rated as limited knowledge, 11-16 as average knowledge and 17-21 as adequate knowledge. For the section on knowledge about cervical cancer screening, six questions were assessed with a minimum possible score of one, and a maximum possible score of eight. A score of one-four was rated as limited knowledge while a score of five-eight got an adequate knowledge rating. The section on attitudes towards cervical cancer and screening assessed four questions with a minimum attainable score of zero and a maximum attainable score of four. A rating of zero-three was classified as negative attitude and positive attitude assigned for a score of four.

Bivariate analyses were conducted to test for associations between socio-demographic characteristics and knowledge and attitudes about cervical cancer and screening using Pearson Chi-squared and Fisher's exact tests. Statistical significance was set at a p-value ≤0.05.

3.0 Results

Six hundred and nine (609) women participated in the survey out of a total sample of 628, giving a response rate of 96.97%.

3.1 Socio-demographic characteristics

The median age of participants was 34 years (IQR 29-42). More than half the participants (317:52.10%) were in the youngest age group (25-34 years) and unemployed (277: 54.52%). Most were married (439:72.09%), had a median of 3 children (IQR 2-4), and had attended secondary school (407:66.83%). Three hundred and seventy-one (371:60.92%) resided in rural communities and more than half would access health services from a Rural Health Centre (RHC) (332:54.52%). No family history of cervical cancer was reported by the majority of participants (436:71.59%). Characteristics of the study participants are summarised in Table 1.

Table 9: Participants' socio-demographic characteristics

Variable	Category	Frequency	%
Study participants, n		**609**	**100.00**
Age	25-34	317	52.06
	35-44	177	29.06
	45 – 50	115	18.88
Place of Residence	Rural	371	60.92
	Urban	206	33.83
	Mine	32	5.25
Marital status	Not married	170	27.91
	Married	439	72.09
Parity	0	23	3.78
	1-4	486	79.80
	5^+	100	16.42
Educational attainment	Primary school	164	26.93
	Secondary school	407	66.83
	Tertiary education	38	6.24
Employment status	Employed	277	45.48
	Unemployed	332	54.52
Usual health service provider	Rural Health Center	332	54.52
	Urban clinic	179	29.39
	Mine clinic	33	5.42
	Gwanda Provincial Hospital	58	9.52
	Other	7	1.15
Ever been tested for HIV?	Yes	593	97.37
	No	16	2.63
Family history of cervical cancer	Yes	41	6.73
	No	436	71.59
	Don't know	132	21.67

3.2 Knowledge of women on cervical cancer

The majority of participants (492:80.79%) confirmed they had heard about cervical cancer before this study (Figure 1).
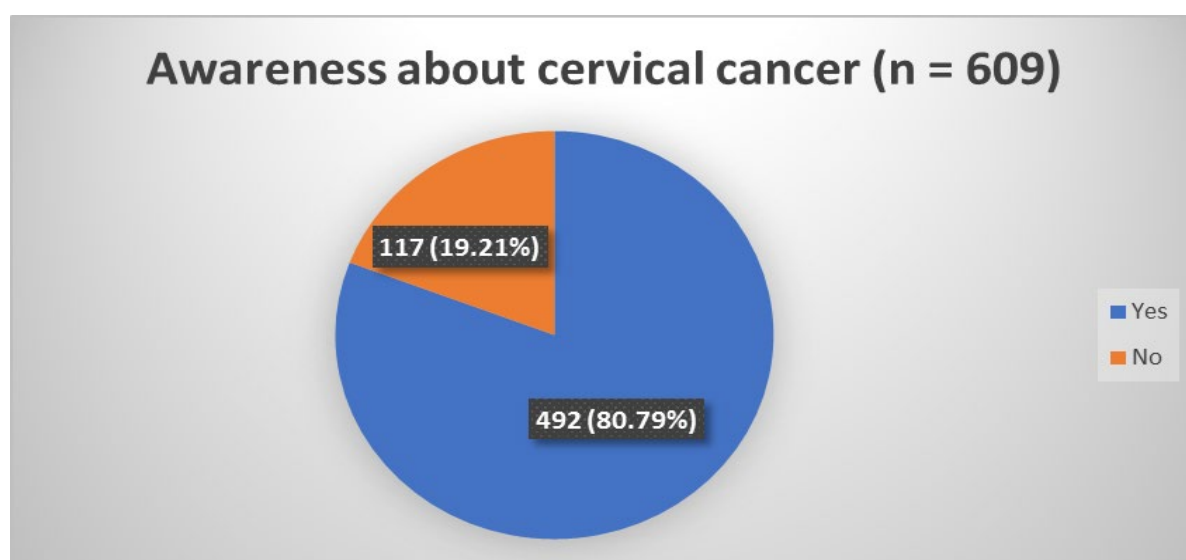
Figure 1: Proportion of participants aware of cervical cancer

Table 2 presents a summary of participants' responses on cervical cancer knowledge. Based on the overall knowledge level rating highlighted in the data analysis section, more than three-quarters of the 492 participants who had heard about cervical cancer (395:80.28%) had limited knowledge, and none demonstrated adequate knowledge on the disease. Less than half (235:47.76%) correctly defined cervical cancer as a malignancy that affects the cervix and almost a third (137:27.85%) thought it was the uterus that was affected.

The highest proportion of participants (187:38.01%) did not know the main cause of cervical cancer. One hundred and fifty-seven (157:31.91%) attributed the disease to the use of herbs and other materials in the vagina and only (29:5.89%) were aware that HPV is the associated agent in the aetiology of the disease. Of the 10 provided risk factors for the development of cervical cancer, use of herbs and other materials in the vagina (463:94.11%), having sex with a high-risk partner (441:89.63%), having many sexual partners (440: 89.43%), poor genital hygiene (435: 88.41%) and HIV infection (384:78.05%) were the most commonly cited.

The items used to assess participants' knowledge of the signs and symptoms of cervical cancer include excessive vaginal bleeding, bleeding between periods, and pain during sex, unusual vaginal discharge, pelvic pain, and bleeding after sex. This was a multiple response question that attracted 630 responses. One third of the participants did not know of any symptoms (188:29.84%). The majority, approximately 70% knew at least one symptom, with pelvic pain (157:24.92%) and unusual vaginal discharge (144:22.86%) being the most frequently mentioned. Just above half of the participants (263:51.57%) were aware that cervical cancer could be prevented through regular screening. However, only 52 (10.20%) were aware that the HPV vaccination of young girls before their sexual debut could prevent the disease (see Table 2).

Table 10: Participants' knowledge of cervical cancer

Variable	Frequency	Percent (%)
Study participants, n	**492**	**100.00**
What is cervical cancer?		
Cancer that affects the cervix	235	47.76
Cancer that affects the uterus	137	27.85
Other	34	6.91
Don't know	86	17.48
What is the main cause of cervical cancer?		
HPV infection	29	5.89
Use of herbs and other materials in the vagina	157	31.91
Other	119	24.19
Don't know	187	38.01
Risk factors for cervical cancer		
Early sexual debut	382	77.64
Multiple sexual partners	440	89.43
High risk sexual partner	441	89.63
HIV infection	384	78.05
Poor genital hygiene	435	88.41
High number of pregnancies	191	38.82
Diet low in fruits and vegetables	179	36.82
Smoking	277	56.30
Prolonged use of contraceptives	90	18.29
Use of herbs and other materials in vagina	463	94.11
Signs and symptoms of cervical cancer (multiple response question, 603 responses)		
Excessive vaginal bleeding	27	4.29
Bleeding between periods	28	4.44
Pain during sex	19	3.02
Unusual vaginal discharge	144	22.86
Pelvic pain	157	24.92
Bleeding after sex	13	2.06
Other complaints	54	8.57
Don't know	188	29.84
Methods of cervical cancer prevention (multiple response question,510 responses)		
HPV vaccination	52	10.20
Cervical cancer screening	263	51.57
Cannot be prevented	175	34.31
Don't know	20	3.92
Overall knowledge on cervical cancer based on the composite score		
Limited	395	80.28
Average	97	19.72
Adequate	0	0

3.3 Participants' knowledge of HPV

From the total sample including those that had never heard of cervical cancer, 494 (81.12%) were aware of the national HPV vaccination programme that was launched in 2018, and 372 (61.08%) were knowledgeable on how HPV could be transmitted.

Cross tabulations were done to determine associations between socio-demographic characteristics and overall knowledge on cervical cancer. The results from the tests of association were statistically significant ($p \leq 0.05$)

for age, parity and employment status (Table 3). Being older, grand-multiparity, and being employed was significantly associated with better knowledge of cervical cancer.

Table 11: Composite knowledge score of cervical cancer with participants' socio-demographic characteristics

Socio-demographic *characteristics*	Knowledge of cervical cancer			
	n (%)	Limited	Average	p-value*,¥
	609 (100)	512 (84.07)	97 (15.93)	
Age				**<0.001***
25-34	317 (52.05)	284 (55.47)	33 (34.02)	
35-44	177 (29.06)	146 (28.52)	31 (31.96)	
45+	115 (18.88)	82 (16.02)	33 (34.02)	
Place of residence				0.088
Rural	371 (60.92)	310 (60.55)	61 (62.89)	
Urban	206 (33.83)	179 (34.96)	27 (27.84)	
Mine	32 (2.25)	23 (4.49)	9 (9.28)	
Marital status				0.314
Unmarried	170 (27.91)	147 (28.71)	23 (23.7)	
Married	439 (72.09)	365 (71.29)	74 (76.29)	
Number of children				**0.03***
0	23 (3.78)	20 (3.91)	3 (3.09)	
1-4	490 (80.46)	420 (82.03)	70 (72.16)	
5+	96 (15.76)	72 (14.06)	24 (24.74)	
Level of education				0.396
Primary	164 (26.93)	138 (26.95)	26 (26.80)	
Secondary	407 (66.83)	345 (67.38)	62 (63.92)	
Tertiary	38 (6.24)	29 (5.66)	9 (9.28)	
Employment status				**0.028***
Unemployed	332 (54.52)	289 (56.45)	43 (44.33)	
Employed	277 (45.48)	223 (43.55)	54 (55.67)	
Usual health care service provider				0.99
Rural health centre	332(54.52)	274 (53.52)	58 (59.79)	
Urban clinic	179 (29.39)	159 (31.05)	20 (20.62)	
Mine clinic	33 (5.42)	24 (4.69)	9 (9.28)	
Gwanda Provincial hospital	58 (9.52)	50 (9.77)	8 (8.25)	
Other	7 (1.15)	5 (0.98)	2 (2.06)	
Family history of cervical cancer				0.946
Yes	41 (8.60)	33 (8.64)	8 (8.42)	
No	436 (91.40)	349 (91.36)	87 (91.58)	
HIV status				0.755
Yes	593 (97.37)	499 (97.46)	94 (96.91)	
No	16 (2.63)	13 (2.54)	3 (3.09)	

*Footnote: p-value calculated using *Pearson chi-squared or ¥Fischer's exact test (p≤0.05 denotes statistically significant relationship between knowledge of cervical cancer and sociodemographic variable)*

3.4 Knowledge about cervical cancer screening

Awareness of cervical cancer screening was common among the participants (518:85.06%) as illustrated in Figure 2.
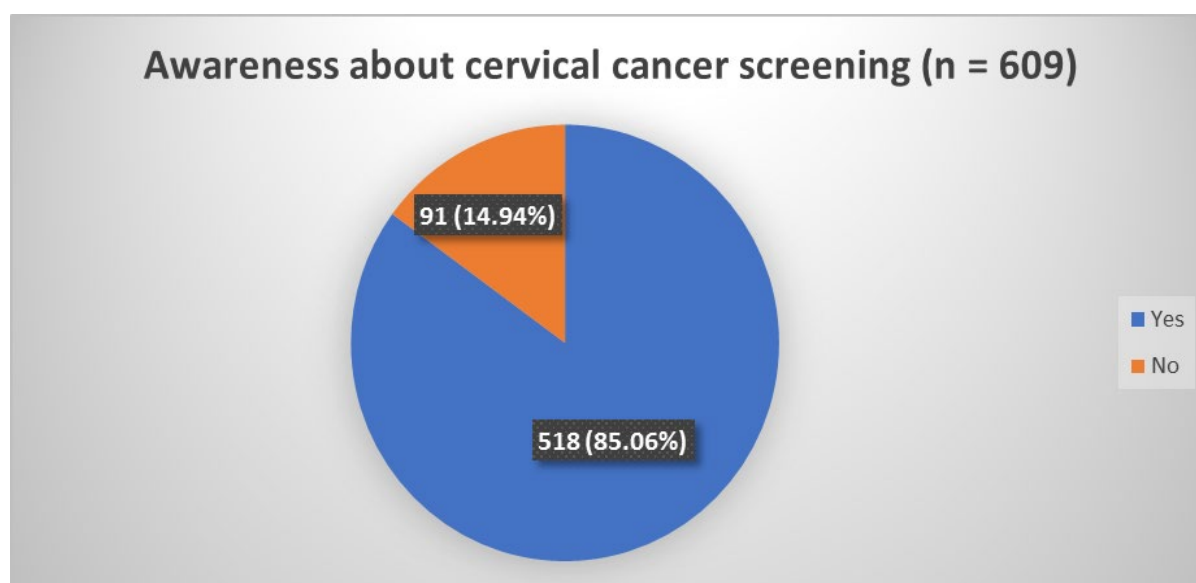
Figure 2: Proportion of participants aware of cervical cancer screening programmes

Of the 518 participants that were aware of the screening programme, only 156 (30.12%) had adequate knowledge related to screening. More than half (279:52.94%) did not know of any cervical cancer screening tests although 219 (41.18%) were able to identify VIAC, the national screening method. Almost the same proportion lacked knowledge on how the screening procedure is performed (286:55.21%), and how often women should be screened (259:50%). Most participants (450:86.87%) were aware that cervical cancer can be detected early through screening and can be cured if diagnosed early (454:87.64%). (See Table 4)

Table 12: Participants' knowledge of cervical cancer screening

Variable	Frequency	Percent (%)
Study participants, n	**518**	**100.00**
Tests used for screening (multiple response question, 527 responses)		
Don't know	279	52.94
VIAC	217	41.18
Pap – smear	20	3.79
HPV DNA	3	0.57
Wrong answer given	8	1.52
Screening procedure		
Don't know	280	54.05
Correct description	232	44.79
Wrong description	6	1.16%
Screening can detect early disease		
Yes	450	86.87
No	21	4.05
Don't know	47	9.07
Cervical cancer is curable if diagnosed early		
Yes	454	87.64
No	27	5.21
Don't know	37	7.14
Cervical cancer screening frequency		
1 year	69	13.32
2 years	32	6.18
3 years	54	10.42
Other	104	20.08
Don't know	259	50
Overall knowledge on cervical cancer screening based on the composite score		
Limited	362	69.88
Adequate	156	30.12

When participants were asked about their sources of information on cervical cancer screening, health workers (313:56.81%), family and friends (124:22.50%), and the mass media (99:17.97%) emerged as the most common. Churches (8:1.45%) and schools (7:1.27%) were the least common sources.

Table 5 shows that place of residence, level of education, and employment status were the only socio-demographic characteristics that were significantly associated with knowledge on cervical cancer screening

(p ≤ 0.05). Rural residency, lower educational attainment, and unemployment were significantly associated with limited knowledge on cervical cancer screening.

Table 13: Composite knowledge score on cervical cancer screening with participants' socio-demographic characteristics

Characteristics	Knowledge about cervical cancer screening, n (%)			
	Overall	Limited	Adequate	p-value[*,¥]
	609 (100)	453 (74.38)	156 (25.62)	
Age				0.539
25-34	317 (52.05)	240 (52.98)	77 (49.36)	
35-44	177 (29.06)	132 (29.14)	45 (28.85)	
45+	115 (18.88)	81 (17.88)	34 (21.79)	
Place of residence				**0.009[*]**
Rural	371 (60.92)	292 (64.46)	79 (50.64)	
Urban	206 (33.83)	139 (30.68)	67 (42.95)	
Mine	32 (5.25)	22 (4.86)	10 (6.41)	
Marital status				0.347
Unmarried	170 (27.91)	131 (28.92)	39 (25.00)	
Married	439 (72.09)	322 (71.08)	117 (75.00)	
Number of children				0.418
0	23 (3.78)	15 (3.31)	8 (5.13)	
1-4	490 (80.46)	363 (80.13)	127 (81.41)	
5+	96 (15.76)	75 (16.56)	21 (16.46)	
Level of education				**0.017[*]**
Primary	164 (36.93)	133 (29.36)	31 (19.87)	
Secondary	407 (66.83)	297 (65.56)	110 (70.51)	
Tertiary	38 (6.24)	23 (5.08)	15 (9.62)	
Employment status				**0.009[*]**
Unemployed	332 (54.52)	261 (57.62)	71 (45.51)	
Employed	277 (45.48)	192 (42.38)	85 (54.49)	
Usual health care service provider				0.106
Rural health Centre	332 (54.52)	261 (57.62)	71 (45.51)	
Urban clinic	179 (29.39)	126 (27.81)	53 (33.97)	
Mine clinic	33 (5.42)	23 (5.08)	10 (6.41)	
Gwanda Provincial Hospital	58 (9.52)	39 (8.61)	19 (12.18)	
Other	7 (1.15)	4 (0.88)	3 (192)	
Family history of cervical cancer				0.801
Yes	41 (8.60)	28 (8.38)	13 (9.09)	
No	436 (91.40)	306 (91.62)	130 (90.91)	
HIV status				0.072
Yes	593 (97.37)	438 (96.69)	155 (99.36)	
No	16 (2.63)	15 (3.31)	1 (0.64)	

Footnote: p-value calculated using [*]Pearson chi-squared or [¥]Fischer's Exact test (p≤0.05 denotes statistically significant relationship between knowledge of cervical cancer screening and sociodemographic variable)

3.5 Participants' attitudes towards cervical cancer and screening

From the overall attitude score described in the data analysis section, well above half the participants (356:58.46%) demonstrated positive attitudes towards cervical cancer and screening. Three hundred and sixty-eight (368:60.43%) believed they were at risk for cervical cancer and almost all perceived cervical cancer as a serious disease (591:97.04%) and supported the idea that all women should be screened irrespective of their health status (598:98.19%). Nearly all participants wished to learn more about cervical cancer screening (594:97.54%).

None of the socio-demographic factors had statistically significant effects on women's attitudes towards cervical cancer and screening (p > 0.05).

3.6 Practices on cervical cancer screening

Although 518 (85.06%) of the participants in the study were aware of the cervical cancer screening programme as shown in Figure 3, more than two-thirds (426:69.95%) had never been screened.
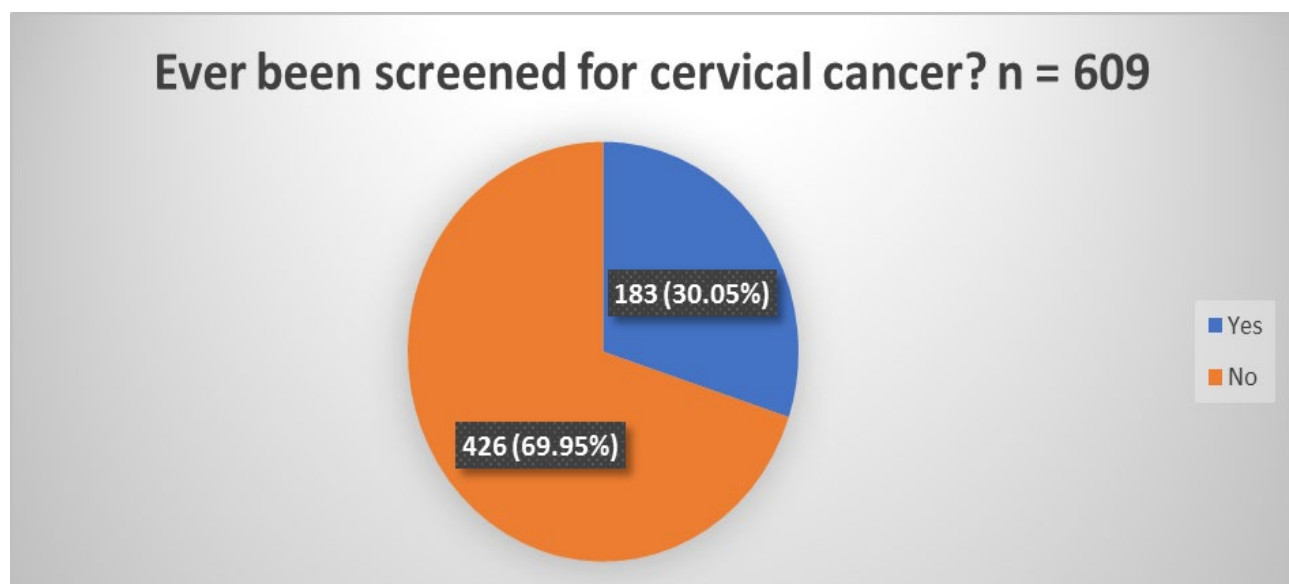
Figure 3: Participants' cervical cancer screening status

Table 6 presents participants' practices on cervical cancer screening. Of the 183 (30.05%) women who had been screened, three-quarters (138:75.41%) had accessed the service from Gwanda Provincial Hospital, the only public screening centre in the district. One hundred and fifty (81.97%) had been screened within the previous three years and thus classified as adequately screened according to the ZCCPCS which recommends that HIV-negative women should be screened every three years (9). An upward trend in screening rates was observed with each successive year. The most common reasons participants gave for undergoing screenings were self-motivation (82:44.81%) and recommendation by a health worker (67:36.61%). Under 'other', the main reason that motivated participants to seek screening was gynaecological problems.

Table 14: Participants' practices on cervical cancer screening

Variable	Frequency	Percent (%)
Study participants, n	**183**	**100.00**
Screening place		
Gwanda Provincial Hospital	138	75.41
Other Government Hospitals	12	6.56
South Africa	11	6.01
Outreach Clinics	5	2.73
New Start Centres	5	2.73
Urban clinics	4	2.19
Zimbabwe National Family Planning Clinics	4	2.19
Mission Hospitals	2	1.09
Private Doctors	2	1.09
Reasons for screening		
Decided on my own	82	44.81
Recommendation by health workers	67	36.61
Advice from family/ friends	11	6.01
Other	23	12.57

Table 7 depicts the participants' reasons for not screening. Lack of awareness of the cervical cancer screening programme (91:21.36%), inadequate information on screening (73:17.14%), and apathy (64:15.02%) were the main reasons for not screening. However, the majority of participants (393:92.25%) who had never been screened expressed the wish to be screened in the near future.

Table 15: Participants' reasons for not screening

Reason	Frequency	Percent (%)
Study participants, n	**426**	**100.00**
Have never heard of the programme	91	21.36
Have inadequate information on screening	73	17.14
Apathy	64	15.02
Have no money to travel to screening site	43	10.09
No perceived risk for cervical cancer	42	9.86
Screening not offered at local clinic	32	7.51
No time to go for screening	32	7.51
Fear of being diagnosed with cervical cancer	21	4.93
They only screen a limited number per day	14	3.29
Fear that the test is painful	8	1.88
There is an age restriction on screening	3	0.70
Cultural and religious beliefs	3	0.70

3.7 Knowledge, attitudes, and behaviours associated with cervical cancer screening

Knowledge on cervical cancer and screening were observed to be significantly associated with screening (p < 0.001). Women with limited knowledge on both cervical cancer and screening were less likely to be screened compared to those with average and adequate knowledge. Although 356 (58.46%) of the participants demonstrated positive behaviours including the desire to know more about cervical cancer and screening practices, there was no association between attitudes and cervical cancer screening (p = 0.367). Of the 356 participants who exhibited positive attitudes, 244 (57.28%) had never been screened. Table 8 presents a summary of the cross-tabulations.

Table 16: Knowledge and attitudes associated with cervical cancer screening

Characteristics	Cervical cancer screening status, N (%)			
	Overall	No	Yes	p-value[*]
	609 (100)	426 (69.95)	183 (30.05)	
Knowledge about cervical cancer				**<0.001**
Limited knowledge	512 (84.07)	377 (88.50)	135.(73.77)	
Average knowledge	97 (15.93)	49 (11.50)	48 (26.23)	
Knowledge about cervical cancer screening				**<0.001**
Limited knowledge	453 (74.38)	397 (93.19)	56 (30.60)	
Adequate knowledge	156 (25.62)	29 (6.81)	127 (69.40)	
Attitudes towards cervical cancer & screening				0.367
Negative	253 (41.54)	182 42.72)	71 (38.80)	
Positive	356 (58.46)	244 (57.28)	112.(61.20)	

Footnote: p-value calculated using [*]Pearson chi-squared test (p≤0.05 denotes statistically significant relationship between cervical cancer screening status and predictor variables)

4.0 Discussion

Awareness of cervical cancer as a disease was high (80.79%) among women who participated in this study. The findings are consistent with those of similar studies conducted in other provinces of the country where awareness levels ranged from 65.3% to 87.47% (17,22,23,25). The high level of awareness observed in this and other recently conducted studies reflects the outcome of the intensified efforts on cervical cancer prevention and control by the MOHCC through the implementation of its cervical cancer prevention and control strategy. The same reason can be attributed to the high awareness of cervical cancer screening among the participants (85.06%). Based on the premise that attendance on a programme is strongly dependent on the

129

target population's awareness of the existence of that service (17,31), this encouraging finding could be used as a building block in the strengthening of strategies to improve utilisation of the screening programme.

Nevertheless, overall knowledge of the disease's cause, risk factors, signs and symptoms and prevention measures were limited amongst most participants (80.28%). Similarly, knowledge on screening benefits and modalities was low with only 30.12% of participants possessing adequate knowledge compared to the 85.06% awareness rate on cervical cancer screening. This demonstrates the gap that exists between hearing about the disease and screening services and full knowledge about the disease. Being aware of the disease does not essentially translate into knowledge. These results confirm findings of a South African study which revealed that the decision to screen is also influenced by the extent to which a person understands the benefits associated with regular screening and the information about the procedure (2).

Place of residence, level of education, and employment status were significantly associated with knowledge on cervical cancer screening. Awareness strategies should therefore incorporate culture-sensitive education tailored for all classes of women on all aspects of cervical cancer to enable them to make informed decisions about screening.

This dearth of knowledge on cervical cancer has also been observed in other studies conducted in Zimbabwe. Poor knowledge was noted in Mudzi, a remote district in Mashonaland East Province where 51% of the respondents did not know the signs and symptoms of cervical cancer (23). Another study carried out among high school and university students across five provinces of Zimbabwe also revealed that over 85% of the students did not have adequate knowledge of cervical cancer and its risk factors (25). Sexual and reproductive health programmes including cervical cancer should be rolled out to higher-level educational institutions by the MOHCC and its collaborators to bridge this gap.

On the contrary, knowledge levels were above average and high in studies conducted in an urban setting in Midlands province (15), and at a provincial hospital in Mashonaland Central Province (21) where 62% and 95% of the women were aware of the risk factors for cervical cancer respectively. The study settings could be accountable for the difference in the levels of knowledge between these and our study. Whereas screening services are available at provincial hospitals and urban settings and information would be readily available, this study was conducted in a predominantly rural district. Primary Health Centres (PHCs) in the study district currently do not provide cervical cancer screening but refer women to the provincial hospital. Consequently, education on cervical cancer may not be prioritised in health facilities that do not offer screening services.

Of particular note in this study was that 31.91% of participants indicated the use of herbs and other materials in the vagina as the main cause of cervical cancer, the second-highest response after 38.01% who did not know. Similarly, the same was observed to be the most known risk factor for cervical cancer by 94.11% of the participants. This finding calls for a balanced approach to the quality of health education health workers provide to mothers. In Uganda, Mwaka and colleagues (32) reported that health providers particularly at primary levels of care are not conversant with cervical cancer prevention, control, and care. Consequently, they are constrained on giving women accurate information on cervical cancer and screening. Drawing from

this observation, periodic in-service training and refresher courses for all cadres of health workers are necessary to empower them with adequate skills for the delivery of accurate up to date information on cervical cancer to improve women's knowledge of the disease.

Less than a third of participants (30.05%) in this study had been screened for cervical cancer. In a study carried out at Kwekwe General Hospital, an urban facility in the Midlands Province, a slightly higher percentage (34%) had undergone screening (22). Although these screening rates are low considering the national target of 50% screening prevalence by 2020 (9), they are much higher than those reported in other studies conducted within the last five years in different parts of the country. Three studies conducted in rural settings for example revealed that only 3.8% (23), 4.9 % (17) and 5.8% (24) of women had been screened, while a 16.8 % screening prevalence was reported in a study conducted in an urban setting (15).

In this current study, health workers contributed 56.81% to women's knowledge on cervical cancer screening and the second most common reason for screening was because a health worker had recommended it (36.61%) after self-motivation (44.81%). This is comparable to the Kwekwe study where health workers contributed 39.4% to women's knowledge of cervical cancer (22). On the other hand, a health worker knowledge contribution of only 9% was noted in a rural district study that had a low screening rate of 5.8%, after news media (22.4%) and social media (44.9%) (24).

Looking up to health workers for health information, guidance and encouragement have proven to be a norm in many societies (33,34). Dissemination of information on cervical cancer and screening by health workers could thus have partly contributed to the higher screening uptake by women in this study. Consistent with Kangmennaang and colleagues (35) in a study conducted in Kenya, more contact with health workers becomes a source of vital information about cervical cancer screening. This is because the opinion of health workers is held in high regard by communities (30). Higher screening rates could be achieved if health workers could in addition to giving information to women about screening also motivate them for screening.

This study found a lack of awareness about cervical cancer screening and inadequate information about screening as the most important reasons for women's failure to screen. This finding creates a need for health service providers to re-engineer health education strategies to match women's circumstances in an endeavour to improve their knowledge to enhance their utilisation of screening services.

Although more than half the participants in this study exhibited positive attitudes towards cervical cancer screening, 68.26% of them had never been screened. These findings are in concurrence with those of Birhanu and colleagues (16) who allude to a strong association between knowledge and attitudes, and subsequent screening practices. Although participants in this study had positive attitudes towards screening and most (92.25%) wished to be screened, they lacked adequate information to get the motivation for screening. Furthermore, the fact that three-quarters of women who had been screened (75.41%) accessed the service from Gwanda Provincial Hospital the only screening site in the district, and 6.01% from South Africa where screening services are well structured and available at all PHCs suggests that more women could be screened

if the service were to be locally provided at PHC facilities. This again confirms the multi-factorial nature of health-seeking behaviours alluded to in previous studies (19,30).

A limitation of this study is the non-standard measure of knowledge across the compared studies. While some used a composite knowledge measure combining all components of cervical cancer and screening, others assessed these aspects singularly. Hence, even though the findings of our study are consistent with those of most studies conducted in Zimbabwe, caution should be exercised in their interpretation due to the highlighted inconsistency in the measured variables.

5.0 Conclusion

Based on the findings of this study, it can be concluded that women's knowledge of cervical cancer and screening, and their utilisation of screening services is low despite the positive attitudes they possess towards screening. Limited knowledge levels on screening are more prevalent among rural communities and women with lower levels of education and the unemployed. In light of these findings, varied cervical cancer dissemination strategies need to be employed for particular groups of women to improve their knowledge of cervical cancer prevention and control. Training of health workers on the subject should be extended to health workers at all levels of the health system including those where screening services are currently not provided. This could promote a better understanding of the benefits of screening to pave way for addressing other factors that affect screening uptake. Future studies should focus on the development of effective interventions to increase knowledge on cervical cancer prevention and control. Such focused interventions could contribute to increased uptake of screening culminating in a decrease in cervical cancer incidence and mortality.

6.0 Declarations

Abbreviations

HIV: Human immunodeficiency virus; HPV: Human Papillomavirus; HPV DNA: Human Papillomavirus deoxyribonucleic acid; IQR: Inter quartile range: MOHCC: Ministry of Health and Child Care; PHC: Primary Health Centre; VCW: Village Community Worker; VIAC: Visual inspection with Acetic Acid and Cervicography; WHO: World Health Organization; ZCCPCS: Zimbabwe Cervical Cancer Prevention and Control strategy.

Acknowledgements

Ethics approval and consent to participate

The Stellenbosch University Health Research Ethics Committee (S18/10/217) and the Medical Research Council of Zimbabwe (MRCZ/A/2426) granted ethical approval for the study. Written informed consent was obtained from all study participants after a full explanation of the study.

Availability of data and materials

Data can be availed on request from the corresponding author.

Competing interests

The authors declare that they have no competing interests

Author's contributions

FM, a PhD student in Public Health at Stellenbosch University conceived and designed the study, collected data, contributed to data analysis and drafted the manuscript. VS and YT supervised all the processes from the design of the study through the review of the manuscript. PS analysed the data. All authors read and approved the final manuscript.

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Chapter 6: Women's perspectives on barriers to cervical cancer screening in Gwanda district, Zimbabwe: A quantitative study

This chapter which addresses the third objective of the study has been written as a manuscript and is ready for submission to the journal *Cancer Control*.

What is already known about this topic

Proven low cost and high impact initiatives for the prevention and control of cervical cancer exist. However, implementation of such interventions in Zimbabwe and other low- and middle-income countries is negatively affected by innumerable barriers at different levels of influence, that are discussed in this study.

Contribution to the Cancer Control field

Secondary prevention of cervical cancer requires a holistic and balanced approach that combines raising knowledge levels on cervical cancer screening, increasing access to screening services, and making the programme acceptable to communities for it to be effectively utilised. Communities need to be involved in the identification of barriers to screening, and in developing strategies to overcome them.

Implications towards policy and practice

Successful implementation of the cervical cancer and control programme in Zimbabwe requires a sustained needs-based, and targeted culture-sensitive educational programme that is supported by community involvement and financial, human, material, and technical resources to ensure acceptability, availability and accessibility of the programme.

Abstract

Introduction: This study is embedded within a broad research project which explored barriers to cervical cancer screening in one district of Zimbabwe. Cervical cancer screening coverage was found to be low (30.05%). In order to increase the uptake of screening in this district, women's perceived barriers to screening need to be determined and addressed.

Objective: The primary objective of the study was to identify factors women in the Gwanda district perceive as barriers to cervical cancer screening.

Methods: A cross-sectional quantitative study design with an analytical component was employed. Data were collected from 609 women using researcher-administered questionnaires. Multistage random sampling was used to select participants. Pearson Chi-square tested for associations between socio-demographic characteristics and screening status with a significance level set at $p \leq 0.05$. Multivariable log-binomial regression was performed between socio-demographic characteristics and barriers to screening. Socio-ecological predictors of barriers to cervical cancer screening were ascertained and key barriers were extracted using Factor Analysis.

Results: Barriers to screening were highly associated with residence, the usual health provider, and knowledge on cervical cancer screening. The risk of facing screening barriers was 0.75 (95% CI 0.67 – 0.82) and 0.45 (95% CI 0.33 – 0.62) times lower for urban and mine women respectively compared to rural women. Those with adequate knowledge of screening were 45% less likely to face barriers (RR = 0.55, 95 % CI 0.46 – 0.66) compared to those with limited knowledge. After adjusting for other factors, women who received health services from the urban and mine clinics were more likely to face barriers compared to Rural Health Center users, RR = 1.12 (1.06 – 1.17) and 1.55 (1.38 – 1.74) respectively. Knowledge gaps on screening, inaccessibility of screening services and socio-cultural beliefs were identified as the key barriers to screening.

Conclusion: Women likely to face barriers to screening reside in rural areas, have poor knowledge on screening and attend health services at primary health facilities where screening is not offered. Effective educational programmes supported by adequate physical and financial infrastructure and community involvement are required to increase women's access to screening services.

Abbreviations

ART	Antiretroviral therapy
CI	Confidence Interval
DEFF	Design Effect
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IQR	Interquartile range
KMO	Kaiser-Meyer-Olkin
MSA	Measure of Sampling Adequacy
MOHCC	Ministry of Health and Child Care
OPHID	Organisation for Public Health Interventions and Development
RHC	Rural Health Center
RR	Relative Risk
SEM	Socio-ecological Model
VIAC	Visual Inspection with Acetic Acid and Cervicography
ZCCPCS	Zimbabwe Cervical Cancer Prevention and Control Strategy
ZDHS	Zimbabwe Demographic and Health Survey

1.0 Background

Sexual and reproductive health has widespread and profound implications for many aspects of life including wellbeing, sustainable development and the economy. Women however continue to suffer and die from cervical cancer due to poor access to high-quality affordable preventive care.[1] Cervical cancer is one of the few preventable diseases that reflect global disparities in the implementation of health promotion and disease prevention interventions.[1] The disease incidence and mortality rates that are almost twice as high, and three times higher respectively in low and middle than in high-income countries demonstrate this evidence.[1] Bray et al[2] estimates that worldwide, 570,000 women were newly diagnosed with cervical cancer and 311,000 died from the disease in 2018. This is because cervical cancer screening has not been widely implemented in the deserving regions of the world that have the highest disease burden.[1] This notwithstanding, new proven cost-effective tools exist for routine screening, an intervention that can prevent and control most cervical cancers and related deaths.[3] Various challenges and limiting factors to screening access nevertheless prevail in low-resourced settings.[4]

Factors influencing low uptake of screening have been widely researched and recognised in poorly resourced settings.[5] A review of barriers to cervical cancer screening among immigrant women in Canada identified low socio-economic status, lack of knowledge about cervical cancer, lack of awareness about the availability of services, failure of health providers to recommend the test and feeling embarrassed at undergoing the procedure as key factors that affect utilisation of screening services. In Sub-Saharan Africa, barriers to screening were seen as a client, provider, and system-related in a systematic review.[6] Lack of knowledge and awareness about screening, no perceived risk for cervical cancer, and cultural and religious factors were identified as the most common client barriers while the inability to inform women about screening was a constraining factor at the level of the provider, and unavailability and inaccessibility of screening services viewed as system related.

The Zimbabwe Cervical Cancer Prevention and Control Strategy (ZCCPCS) 2016-2020,[7] a framework for comprehensive cervical cancer prevention and treatment, alluded to women's lack of awareness, knowledge, and understanding about cervical cancer, and lack of access to preventive screening services as accountable for the high disease morbidity and mortality in the country. Comparably and additionally, studies conducted in Zimbabwe identified lack of screening services at local health facilities, lack of transport to screening centers, cultural and religious factors and lack of readiness for screening as the principal barriers to the uptake of screening.[8,9] Both these studies were rural-based.

The current study was conducted in a hybrid district that constitutes both urban and rural settlements including mines. The likelihood of obtaining a holistic view of the barriers to screening from a heterogeneous population in terms of place of residence was envisaged. The objective of this study therefore, was to identify factors that women in Gwanda district aged 25-50 years perceived as barriers to cervical cancer screening, to strengthen evidence-informed programming and best practice in the area of cervical cancer secondary prevention.

2.0 Methods and Materials

2.1 Study site

The study was conducted in Gwanda district, located in the Matabeleland South Province of Zimbabwe. Gwanda town, the capital of Matabeleland South Province is situated about 100 kilometers from Bulawayo, the second-largest city of Zimbabwe along the Beitbridge to South Africa highway. The district comprises 34 electoral wards (10 urban and 24 rural that include mines) and 30 health facilities. Of the 30 health facilities, one is a tertiary institution (Gwanda Provincial Hospital that serves as a referral center to all health facilities in the district and six district hospitals in the province) and two are mission hospitals. The rest are primary health facilities; four in government institutions, four mine clinics, one urban polyclinic, and eighteen Rural Health Centers (RHCs).

At the time of conducting the study in June-July 2019, Gwanda Provincial hospital was the only public health facility that provided cervical cancer screening in the district using the Visual Inspection with Acetic Acid and Cervicography (VIAC) 'see and treat' method. Phakama Polyclinic, an urban primary health facility, has since started offering VIAC services from 2020. The total district population was estimated at 136 005 in the 2012 census.[10] Of this total, 69 658 are female, with 35 528 (51%) falling within the 15-64 age group within which the screening target lies. The rate of cervical cancer screening in Matabeleland South Province in which Gwanda district is situated was estimated at 8.2% in 2015.[11] The screening prevalence for Gwanda district was estimated at 19 % in the same year.[12] This rate is too low in general and when compared to other provinces in the country, the highest of which was estimated at 23.9%.[11]

2.2 Study design and Population

A descriptive quantitative study design with an analytical component was used in this cross-sectional study. The study population was all women aged 25-50 years resident in Gwanda district for at least six months at the time of the study, a period considered as long enough for a person to have known the profile of their district including places that offer screening services. The 25-50 year age group was appropriately targeted in line with the current ZCCPCS that recommends screening of women in the 30-49 age group at least once, while recognising the reproductive health needs of a large cohort of young women that were born Human Immunodeficiency Virus (HIV) positive and are at high risk of developing high-grade lesions at an earlier age, and older women who are HIV positive and have survived into their 50s and 60s because of antiretroviral therapy (ART).[7]

2.3 Eligibility Criteria

To be eligible for the study, women had to be mentally competent, without a history of cervical cancer and have an intact cervix. Additionally, a history of sexual activity was necessary given the necessary causative agent for cervical cancer, the Human Papillomavirus (HPV) that is sexually acquired.

2.4 Sample Size Calculation

Assuming a 50% prevalence of barriers to cervical cancer screening, desired precision of 5%, 95% Confidence Interval (CI) and a design effect of 1.5 (adjusting for the multi-stage sampling technique used to account for heterogeneity between clusters), a sample size of 628 was calculated using the formula: n = $\left[t^2 \times \frac{p \times q}{d^2} \right] \times DEFF$, where n = sample size, t = 2.045, linked to 95% CI for cluster sampling, 50% prevalence of barriers to cervical cancer screening (p = expected prevalence (fraction of 1), q = 1 - p (expected non-prevalence), d = relative desired precision and DEFF = Design effect. If there is no previous information about the indicator to be measured and the design effect from previous surveys, 50% prevalence and 1.5 design effect can be used as default.[13]

2.5 Sampling Technique

The study was conducted in 10 of 34 electoral wards in the Gwanda district. Multistage sampling was used to select participants for the study. The first stage categorised the 34 wards into urban and rural, then compiled a list of mines from the rural wards, culminating into three strata. Using simple random selection proportionate to strata size, 10 wards were then selected. Six were drawn from the rural stratum, three from the urban and one from the mine (second stage). From each of the 10 randomly selected wards, stratified random selection of one village was done (third stage). At the village and suburb level, rural households were purposively selected while urban and mine households were randomly selected in line with the village/suburb size (fourth stage). Simple random sampling was not possible in the rural villages due to the non-availability of up-to-date sampling frames. One woman aged 25-50 years who met the rest of the inclusion criteria was selected at each household. If more than one eligible woman was found in the selected household, simple random sampling was performed to select the participant (fifth stage).

2.6 Data collection

A researcher-administered semi-structured questionnaire developed from the validated cervical cancer awareness measure toolkit[14] was employed to collect data. The same tool has been used in similar studies [15,16]. Data were collected by the researcher and three research assistants with a nursing background using Mobenzi Researcher, android mobile application software. Research assistants were trained before the survey to reduce non-sampling errors[17] to ensure a high-quality data collection process. The questionnaire was pretested on 20 women in the tertiary health institution, who were not part of the main study. This was to ensure the internal validity of the instrument and minimise measurement error. The questionnaire had six sections that collected data on participants' socio-demographic characteristics, knowledge on cervical cancer, knowledge on cervical cancer screening, attitudes towards screening, and practices on screening and perceived barriers to cervical cancer screening.

2.7 Data Analysis

Data were imported from Mobenzi application software into STATA version 15.1 (StataCorp Inc., College Station, TX, USA) for analysis. Descriptive statistics used frequencies, proportions, median and interquartile ranges (IQR). The Pearson Chi-square test was applied to test for associations between screening status and categorical variables, while the Fisher's exact test was used where 20% of the expected values were below five.[18]

Log-binomial regression analysis was employed to determine associations between socio-demographic factors, knowledge adequacy on cervical cancer, attitudes and barriers to cervical cancer screening. This analysis was preferred over logistic regression which overestimates the odds ratios for cross-sectional studies with common outcomes of prevalence greater than 10%.[19] From the univariate log-binomial regression analysis, variables with a p-value of ≤0.15 were selected for the multivariable log-binomial regression analysis. A backward elimination stepwise method progressively eliminated those values with the highest p-values. Adjusted risk ratios were used to explain the strength of the associations.

To get a better understanding of the barriers to cervical cancer screening, participants' responses were classified into four socio-ecological factors that were summarised to assess the most contributing factors. Factor analysis was then used to extract a small number of interpretable factors that explained the maximum amount of variability in the data. The minimum amount of data for factor analysis was satisfied. Examination of the Kaiser-Meyer-Olkin (KMO) statistic Measure of Sampling Adequacy (MSA) suggested that the sample was factorable (KMO = 0.526).[20] Factors with KMO > 0.50 were retained. The principal components method was chosen for extracting factors. Eigenvalues were obtained for the 23 factors that women highlighted as barriers to screening. Factors that contributed to a simple factor structure and met a minimum criteria of having a primary loading of 0.3 or above,[21] or Eigenvalues exceeding unity were retained. Determining the number of factors to extract from the data is a crucial step. Several approaches offer guidance in this respect and two methods were applied in this study to increase confidence in the results. The number of factors to be generated by the analysis was thus based on; the size of Eigenvalues (>1) and the factors in the scree plot from the point where the slope of the curve is levelling off, referred to as the elbow.[22,23]

3.0 Results

3.1 Socio-demographic characteristics

A response rate of 96.97% was achieved from 609 women that participated in the survey out of the 628 recruited. The median age of participants was 34 years (IQR 29-42). Three hundred and seventy-one (60.92%) resided in rural areas and more than half would seek health services from an RHC (332:54.52%). The majority were married (439:72.09). About two-thirds (407:66.83%) had reached secondary education and more than half (332:54.52%) were unemployed (Table 1).

3.2 Predictors of uptake of cervical cancer screening

Of the 609 women who participated in the study, 183 (30.05%) reported having been screened for cervical cancer. Results from the tests of association were statistically significant ($p \leq 0.05$) for a place of residence, level of education, usual health service provider, and family history of cervical cancer (Table 1). Employment status was marginally statistically significant ($p = 0.056$). The data suggest that these factors were associated with cervical cancer screening.

Table 17: Socio-demographic characteristics associated with cervical cancer screening status

Characteristics	Cervical cancer screening status		
	n (%)	Yes	No
	609 (100)	426 (69.95)	183 (30.05)
Age (years)			0.214[2]
25 – 34	317 (52.05)	88 (48.09)	229 (53.76)
35-44	177 (29.06)	53 (28.96)	124 (29.17)
45+	115 (18.88)	42 (22.95)	73 (17.4)
Median: 34 IQR: 29 - 42			
Place of residence			**0.009[2]**
Rural	371 (60.92)	95 (51.91)	276 (64.79)
Urban	206 (33.83)	78 (42.62)	128 (30.05)
Mine	32 (5.25)	10 (5.46)	22 (5.16)
Marital status			0.231[2]
Unmarried	170 (27.91)	45 (24.59)	125 (29.34)
Married	439 (72.09)	138 (75.41)	301 (70.66)
Parity			0.166[2]
0	23 (3.78)	11 (6.01)	12 (2.82)
1-4	490 (80.46)	144 (78.69)	346 (81.22)
5+	96 (15.76)	28 (15.30)	68 (15.76)
Median: 3 IQR: 2 - 4			
Level of education			**< 0.001[2]**
Primary and below	164 (26.93)	39 (21.31)	125 (29.34)
Secondary	407 (66.83)	123 (67.21)	284 (66.67)
Tertiary	38 (6.24)	21 (11.48)	17 (3.99)
Employment status			**0.056 [2]**
Employed	277 (45.48)	94 (51.37)	183 (42.97)
Unemployed	332 (54.52)	89 (48.63)	243 (57.04)
Usual health care provider			**0.007[2]**
RHC	332 (54.52)	83 (45.36)	249 (58.45)
Urban clinic	179 (29.39)	62 (33.88)	117 (27.46)
Mine clinic	33 (5.42)	10 (5.46)	23 (5.40)
Gwanda Provincial Hospital	58 (9.52)	23 (12.57)	35 (8.22)
Other	7 (1.15)	5 (2.73)	2 (0.47)
Family history of cervical cancer			**0.045[2]**
Yes	41 (6.73)	18 (9.84)	23 (5.40)
No	568 (93.27)	165 (90.16)	403 (94.60)
Knowledge of HIV status			0.168[1]
Yes	593 (97.37)	181 (98.91)	412 (96.71)
No	16 (2.63)	2 (1.09)	14 (3.29)

Footnote: p-values calculated using either [1] Fisher's exact or [2] Pearson Chi-squared test. p≤0.05 denotes statistical significance in the relationship between cervical cancer screening status and socio-demographic characteristics

3.3 Socio-demographic predictors of barriers to cervical cancer screening

Table 2 presents the results of the univariate log-binomial regression between socio-demographic factors, knowledge adequacy on cervical cancer, attitudes, and barriers to cervical cancer screening. Overall, women who lived in urban areas and mines, knew their HIV status, received health care services from the urban clinic, mine clinic, or the tertiary health institution, and had knowledge of cervical cancer and screening were less likely to face challenges in accessing cervical cancer screening (Table 2).

Table 18: Univariate and log-binomial regression analysis between socio-demographic characteristics and barriers to cervical cancer screening

Risk factors	Crude RR	95% CI	p-value
Age (reference: 25-34 years)			
35-44	0.98	(0.87, 1.10)	0.691
45+	0.98	(0.86, 1.12)	0.751
Place of residence (reference: Rural)			
Urban	0.74	(0.66, 0.84)	**<0.001**
Mine	0.70	(0.51, 0.95)	**0.024**
Marital status (reference: Unmarried)			
Married	0.93	(0.84, 1.03)	0.175
Parity (reference: 0)			
1-4	1.09	(0.80, 1.47)	0.595
5+	1.23	(0.90, 1.68)	0.197
Level of education (reference: Primary)			
Secondary	0.92	(0.83, 1.03)	0.139
Tertiary	0.82	(0.64, 1.06)	0.135
Employment status (reference: Unemployed)			
Employed	0.98	(0.88, 1.08)	0.628
Usual health care provider (reference: RHC)			
Urban clinic	0.76	(0.67, 0.86)	**<0.001**
Mine clinic	0.71	(0.53, 0.95)	**0.023**
Gwanda provincial hospital	0.78	(0.64, 0.96)	**0.018**
Other	0.35	(0.11, 1.13)	0.080
Knowledge of HIV status (reference: No)			
Yes	0.76	(0.67, 0.87)	**<0.001**
Family history of cervical cancer (reference: No)			
Yes	1.02	(0.82, 1.26)	0.885
Knowledge cervical cancer (reference: Limited)			
Fair	0.85	(0.72, 1.00)	**0.051**
Knowledge cervical cancer screening (reference: Limited)			
Adequate	0.51	(0.43, 0.62)	**<0.001**
Attitudes towards cervical cancer (reference: Negative)			
Positive	1.01	(0.92, 1.12)	0.801

Multivariable log-binomial regression analysis was performed. The Bayesian Information Criterion (BIC) was used to select the parsimonious model that accomplishes the desired level of explanation or prediction with as few predictor variables as possible.[24] A summary of the final multivariable regression model is presented in Table 3.

Table 19: Final multivariable log-binomial regression between socio-demographics and barriers to cervical cancer screening

Risk factors	Adjusted RR	95% CI	p-value
Place of residence (reference: Rural)			
Urban	0.75	(0.67, 0.82)	**<0.001**
Mine	0.45	(0.33, 0.62)	**<0.001**
Usual health care provider (reference: RHC)			
Urban clinic	1.12	(1.06, 1.17)	**<0.001**
Mine clinic	1.55	(1.38, 1.74)	**<0.001**
Gwanda provincial hospital	0.96	(0.82, 1.13)	0.660
Other	0.46	(0.15, 1.39)	0.169
Knowledge cervical cancer screening (reference: Limited)			
Adequate	0.55	(0.46, 0.66)	**<0.001**
Age (reference: 25-34)			
35-44	0.93	(0.85, 1.01)	0.088
45+	0.99	(0.99, 1.00)	**<0.001**

The results show that barriers to cervical cancer screening were highly associated with place of residence, usual health care provider, and knowledge about cervical cancer screening. Age was adjusted for in the model as a confounding variable. Living in urban areas or mines had a protective effect. The risk of encountering barriers to screening were 0.75 (95% CI 0.67-0.82) and 0.45 (CI 0.33-0.62) times lower for women who lived in these settings compared to those who lived in rural areas. Women who had adequate knowledge about cervical cancer screening were 45% less likely to face any barriers to screening (RR = 0.55, 95% CI 0.46-0.66) compared to those who had limited knowledge. After adjusting for other factors, women who received health care services from the urban clinic had a 12% higher risk (RR 1.12, 95% CI 1.06-1.17) of facing barriers to screening and those in mine clinics had a 55% higher risk (RR 1.55, 95% CI 1.38-1.74) to face barriers to cervical cancer screening compared to those who used RHCs. However, the opposite was true for women who used Gwanda Provincial Hospital and other service providers.

3.4 Socio-ecological predictors of barriers to cervical cancer screening

A summary of the 23 reasons that participants perceived as barriers to screening are presented in Table 4, categorised according to Kaufman et al's[25] adapted socio-ecological model (SEM) into individual, interpersonal, community, and health system factors. Individual factors were mainly linked to personal reasons and challenges, interpersonal factors were related to family and partner disapproval and peer pressure, community factors were mainly related to cultural norms and beliefs, and health system factors were mainly linked to the quality-of-service delivery.

Table 20: Reasons that prevent women from screening based on the socio-ecological model

Factor	Reason	Frequency	% Responses	% Cases
Individual	Lack or inadequate knowledge about cervical cancer screening	266	19.70	43.68
Individual	Fear of cancer diagnosis	192	14.22	31.53
Individual	Lack of knowledge about where to go for screening	129	9.56	21.18
Individual	No perceived risk for cervical cancer	118	8.74	19.38
Health system	Screening not performed at local clinics	117	8.67	19.21
Individual	Financial constraints	114	8.44	18.72
Individual	Not having any complaints or symptoms	87	6.44	14.29
Health system	Lack of health education programmes that promote screening	80	5.93	13.14
Interpersonal	Partner disapproval of cervical cancer screening	39	2.89	6.40
Individual	Screening test is painful	38	2.81	6.24
Community	Screening test is embarrassing (social norms)	27	2.00	4.43
Individual	Lack of time	27	2.00	4.43
Health system	Clinic operating times not convenient	23	1.70	3.78
Individual	Apathy	16	1.19	2.63
Interpersonal	Family disapproval of cervical cancer screening	15	1.11	2.46
Health system	Women are turned away	15	1.11	2.46
Community	Stigma associated with cervical cancer and screening	12	0.89	1.97
Community	Cultural and religious beliefs	9	0.67	1.48
Health system	Long waiting periods	7	0.52	1.15
Individual	Fear of HIV test	6	0.44	0.99
Community	Misconceptions about screening	6	0.44	0.99
Health system	Negative staff attitudes	4	0.30	0.66
Interpersonal	Peer influence	3	0.22	0.49
		1350*	100	**221.67

*Frequency exceeding 609   **% of cases exceeding 100% (multiple response question)

From the results, 43.68% of the participants indicated a lack or inadequate knowledge about cervical cancer screening as the major reason for not utilising cervical cancer screening services. The next most cited reason was fear of a cancer diagnosis with 31.53% of participants giving this reason. Peer pressure had the least frequency with only 0.49% of participants finding it as a reason for not seeking screening. Inadequate or lack of knowledge about cervical cancer screening, unavailability of screening at local health facilities, finding the screening test embarrassing (social norms) and lack of partner support were the most commonly cited reasons for not screening at the individual, health system, community, and interpersonal levels. Overall, individual reasons were the most recorded socio-ecological barriers to screening.

Factor analysis was used to summarise the 23 variables into a fewer number of factors that still captured the maximum variation. Twelve factors that failed to meet minimum criteria of having a primary factor loading of 0.3 or above or Eigenvalues of above one were eliminated. The scree plot of the Eigenvalues was examined, and the plot is shown in Figure 1.
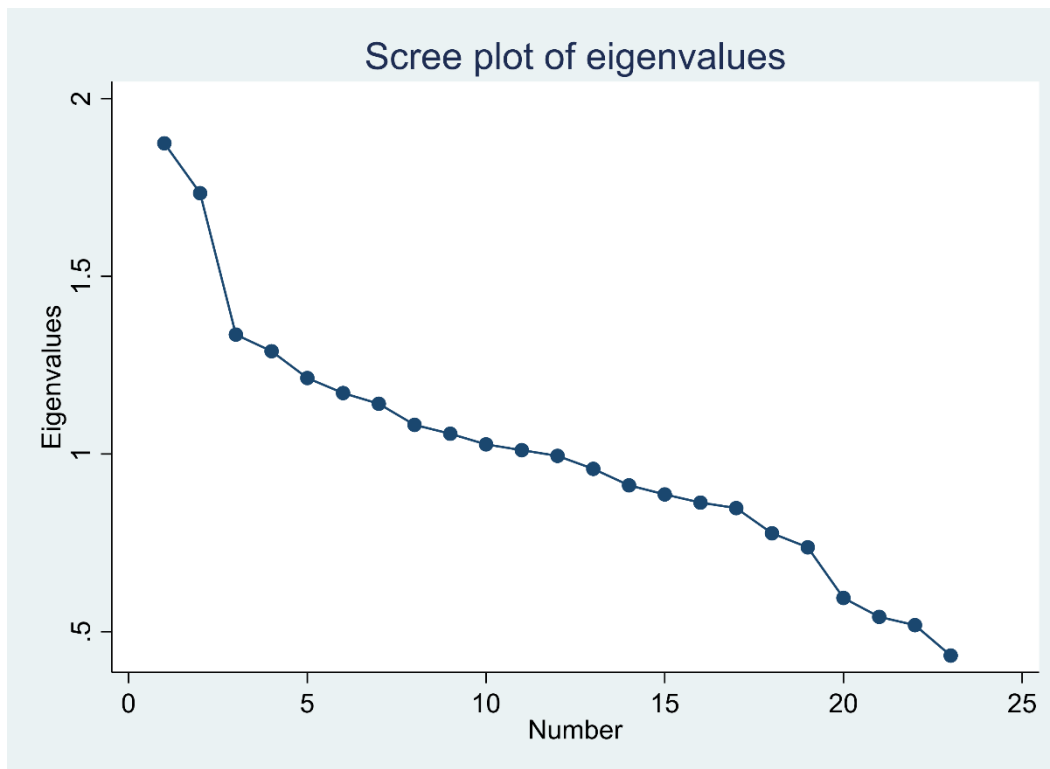
Figure 4: Scree plot of Eigenvalues

Results from the scree plot suggested that only three factors were adequate to explain the barriers to cervical cancer screening in this study. To facilitate the interpretation of the factor solution, factor rotation was conducted with Varimax (orthogonal) applying Kaiser Normalisation and there was no change in the overall interpretation of the results (Table 5). To interpret the factors, each variable was assigned to a certain factor based on its maximum absolute factor loading. Meaningful names for each factor that best describes the set of variables associated with that factor were given.

3.4.1 The three topic factors

Five items loaded onto Factor one. The factors all relate to limited information on cervical cancer screening. This factor loads onto lack or inadequate knowledge about cervical screening, lack of knowledge on where to go for screening, fear that screening is painful and fear of a cancer diagnosis classified as individual factors, and lack of health education programmes that promote screening as health system factors. This factor was labelled 'knowledge gaps on cervical cancer screening'.

Two items load onto the second factor and relate to the difficulty in accessing cervical cancer screening services. These concern screening services not being provided at local health facilities as a health system factor,

148

and women's lack of funds to travel to the screening center and pay for treatment if required as an individual factor. This factor was labelled 'inaccessibility of cervical cancer screening services.

The three items loaded for Factor three are related to the socio-cultural norms that pose a hindrance to screening. Women reported the stigma that was associated with screening classified as community factors, and lack of partner and family support for screening as interpersonal factors. This factor was labelled as 'socio-cultural barriers'.

Table 21: Factor loadings (pattern matrix) and unique variances

Item	Unrotated Factor loadings			Rotated factor loadings			
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Uniqueness
Lack of knowledge about cervical cancer screening	0.7414	0.0894	0.1496	0.7559	-0.0933	0.0035	0.4200
Lack of knowledge about where to go for screening	0.7561	0.0200	0.0870	0.7409	-0.1673	-0.0533	0.4203
No complaints or symptoms	-0.0821	0.0942	-0.2230	-0.1002	0.1000	-0.2129	0.9346
Stigma associated with cervical cancer and screening	-0.0824	-0.0164	0.5374	0.0252	0.0333	0.5423	0.7042
Lack of health educational programmes that promote screening	0.4509	0.0568	0.0789	0.4578	-0.0550	-0.0099	0.7873
Partner disapproval of cervical cancer screening	-0.2196	-0.0965	0.6946	-0.0929	-0.0011	0.7290	0.4600
Family disapproval of cervical cancer screening	-0.1489	-0.1524	0.4471	-0.0885	-0.0860	0.4797	0.7547
Screening not performed at local clinics	-0.2405	0.8041	0.0171	-0.0339	0.8385	-0.0208	0.2953
Financial constraints	-0.3106	0.7650	0.0536	-0.1025	0.8204	0.0315	0.3155
Fear of a cancer diagnosis	-0.4481	-0.5194	0.0418	-0.5411	-0.3863	0.1740	0.5277
Screening test is painful	-0.1859	-0.2891	-0.3886	-0.3232	-0.2527	-0.3175	0.7309
Eigenvalues	1.79826	1.63837	1.21301	1.76584	1.64742	1.23638	
Percentage of total variance	17.98	16.38	12.13	16.05	14.98	11.24	
Number of test measures	5	2	3	5	2	3	

From the factor loadings, the most overwhelming barriers to cervical screening were identified as knowledge gaps on cervical cancer screening, inaccessibility of screening services, and socio-cultural factors that influence women's decision on screening. This is because these three barriers collectively accounted for 42.27 % of the total variation in the data. Knowledge gaps contributed the most in explaining the variability in the data (16.05%), and socio-cultural barriers the least (11.24 %).

4.0 Discussion

This quantitative study identified perceived barriers to the uptake of cervical cancer screening among women in Gwanda district, Zimbabwe. Participants' background characteristics associated with screening were analysed to contextualise the associated barriers. The sample comprised mostly of women who lived in rural areas, had attained a secondary level of schooling, were married and were aged 25-34 years. This is consistent with findings of the Zimbabwe Demographic and Health Survey (ZDHS) 2015, which revealed that the population declines steadily with increasing age and the majority of Zimbabwean women live in the rural areas, attain at least a secondary level of schooling, and are married or living with a man.[11] This shows that participants were mainly a young population.

Pertaining to cervical cancer screening, 30.05% of participants had been screened at least once in their lifetime, up from a screening rate of 19% in 2015 in the same district.[12] Although the 50% national screening target by 2020 set in the 2016 – 2020 ZCCPCS (to be determined in the next ZDHS scheduled for 2021/2022) is unlikely to have been attained based on trends over time, this study reported a much higher screening prevalence compared to other districts in the country. In a 2014 study conducted by Makurirofa et al[26] at a rural district of Mashonaland East Province, the screening rate was reported at 3.8% while a 16.8% screening prevalence was reported from a 2017 study conducted by Mutambara et al[27] in an urban setting in the Midlands Province. The latest study by Nyamambi et al[8] conducted in a rural district in Mashonaland West Province during the same period as the current study (2019) revealed a screening rate of 5.8%. Studies conducted in Tanzania, Eswatini, and Zambia also reported lower screening prevalence (5%, [28] 5.2% [29], and 20.7% [30] respectively) than what we found in our study. These studies were conducted in 2013, 2017, and 2019, respectively. The differences in the proportion of women screened can be explained by the differences in time and settings in which the studies were conducted while reflecting progressive efforts that have been made in Gwanda district at increasing awareness on the importance of screening. Furthermore, low screening rates in most high burdened cervical cancer countries may be due to a lack of robust screening programmes [31].

Findings of this study suggest that women most likely to be screened are those who reside in urban and mine settings and are better educated, have a family history of cervical cancer thus having a high perceived risk of the disease, and attend health care services at the urban and mine clinics and the tertiary hospital. This is a reflection of disparity in access to health facilities for screening. Subsequently, women who reside in urban and mine settings are less likely to face barriers to screening compared to their rural counterparts. The same applies to women who have better knowledge of cervical cancer and screening, know their HIV status, and

routinely attend health services at the urban and mines clinics, the tertiary health institution, and other service providers such as private medical practitioners opposed to RHCs.

These findings are in harmony with those of the 2015 ZDHS [11] which also identified that women in urban areas were three times more likely to have cervical cancer screening than rural women because of the better access they have to health information and screening services. Also noted was the increased likelihood of a woman to have cervical cancer screening as their level of education (knowledge) and wealth (employment status) also increased. This can be attributed to the financial empowerment and better access and understanding of health services that educated women have coupled with their ability to make household decisions.[32]

The reason why HIV positive women face fewer barriers to screening is that VIAC services have been integrated into HIV care at Gwanda Provincial Hospital. Supplementary to that, a development partner, the Organisation for Public Health Interventions and Development (OPHID) has collaborated with Gwanda and other supported districts through the Ministry of Health and Child Care (MOHCC) and provides mobile screening services to women on ART in rural communities.[33] These findings raise the need for targeted action to ameliorate the identified barriers congruent to the women's background characteristics in Gwanda district. Strategies relevant to contexts are also required for the rest of the country for minimising specific barriers and increasing the utilisation of screening services.

An unexpected finding from the multivariate log-binomial regression was that women who attend health services at the urban and mine clinics were more likely to face barriers than those attending RHCs. This finding calls for further research. However, it should be noted that the results also show that those who seek services from the tertiary hospital and other private facilities are less likely to face barriers compared to rural women. This can be explained by the fact that screening services were only available at Gwanda Provincial Hospital and other places where women deliberately sought them, but not at the urban, mine, and rural primary health facilities.

Although 23 interrelated individuals, interpersonal, community and health system barriers to screening were identified in this study, all talked to just three key barriers that were revealed through the application of factor analysis. The major barriers were identified as gaps in knowledge on cervical cancer screening, inaccessibility of screening services, and socio-cultural beliefs. Grounded on the SEM that guided the study, factors from the individual, interpersonal and health system levels of influence were seen to uniquely contribute to the three key barriers with uniqueness values lower than 0.5.

Uniqueness is the variance that is unique to the variable and not shared with other variables in the overall factor model and the smaller the 'uniqueness, the higher the relevance of the variable in the factor model.[34] Unavailability of screening services at local health facilities and financial constraints both related to health system barriers directly and indirectly had the lowest uniqueness values (0.2953 and 0.3155) respectively, and both loaded to the inaccessibility of screening services factor.

Knowledge gaps contributed 16.05% of the total variance with both individual and health system items associated with it. This implies that both the individual and health system contribute to the lack of information

on cervical cancer screening by women. Socio-cultural beliefs that contributed 11.24 % of the total variance also have a bearing on gaps in knowledge.

Our study hypothesises that the health system contributes to all the key barriers to screening. This is regarding the mandate that health providers have of empowering communities with health knowledge. Adequate knowledge within the community could ensure women and their partners and families understand the benefits of screening, cervical cancer and screening are de-stigmatised in the community, places that provide cervical cancer screening are known, women have correct information on how the procedure is performed and what to expect, and understand that a cancer diagnosis is not a death sentence.

Our results support previous studies reported in other Sub-Saharan African countries where lack of comprehensive knowledge on cervical cancer screening [35–37] and where to go for screening [5,36,38] have been cited as reasons that deter women from participating in screening programmes. It has been argued that being well informed is essential to increasing the uptake of screening.[30,39,40] This was confirmed through our multivariable log-binomial analysis which illustrated that women with adequate knowledge about cervical cancer screening were less likely to face barriers to screening.

The factor analysis performed further supported the strong contribution that knowledge gaps have on barriers to screening. Organised health education programmes that not only concentrate on awareness creation about screening but also systematically address all aspects of screening should be integrated into all health interactions at individual and community levels. This could address the identified gaps in women's knowledge of cervical cancer screening.

Contradictory to findings of this study, Tapera et al[41] found high knowledge levels on cervical cancer awareness, prevention, screening, and treatment services among women in a study carried out in Harare, the capital city of Zimbabwe. A possible explanation for this difference in findings could be the nature of the sample in that study. Participants comprised women with a confirmed diagnosis of cervical cancer who have been highly exposed to related information in the course of their management.

Additionally, the health system has the mandate of making screening services readily available to communities. The 2016 - 2020 ZCCPCS had a strategic objective of increasing access to VIAC services among women in lower and higher-level facilities. This entailed establishing VIAC clinics at all mission hospitals and in one RHC in each district by 2020 to reach 50% coverage.[7] VIAC clinics have however not been established at neither of the two mission hospitals in Gwanda district nor at any of the RHCs, and women still access services from the tertiary health facility.

Unsurprisingly, the inaccessibility of screening services remains one of the major barriers to screening in Gwanda district and nationally. In their Chegutu, Zimbabwean study, Nyamambi et al [8] also identified the lack of screening services at local primary health facilities as hindering the uptake of screening. Lack of screening places proximal to women's living areas associated with travel costs to distant screening sites have also been cited as major barriers to screening in studies conducted in Ethiopia, Nigeria and Ghana.[5,35,36] As postulated by Fitzpatrick, Pathipati, and McCathy[31], poor utilisation of screening services is not only a function of knowledge

lack but is also affected by lack of other resources such as unavailability of accessible screening sites as identified in this study.

Community education for raising awareness and advocating for cervical cancer screening should be combined with the establishment of more screening sites to make the service available and accessible to all eligible women. A review of the 2016-2020 ZCCPCS should follow up on the unrealised strategic objectives and build on the realised successes while exploring extensive collaboration with stakeholders to source funding that would increase VIAC clinics and outreach services in hard-to-reach areas.

Socio-cultural factors that also impact interpersonal behaviours at the level of spouses/partners and key family members emerged as one of the key barriers to screening. Communities attach a stigma to cervical cancer such that women shun screening for fear of societal rejection in the event of a screen positive result. Spouses/partners and families do not show support for screening probably due to a poor understanding of its importance and the attached myths and misconceptions.

The findings of culture influencing the decisions for screening are not new. In a systematic review of barriers to cervical cancer in Sub-Saharan Africa, Lim and Ojo[42] observed that women were subjected to societal stigmatisation for attending screening services. This is because cervical cancer is construed as a sexually transmitted disease and there are negative connotations attached to the morals of women who access the service.

For some women, religious beliefs deter them from seeking screening, opting instead for spiritual interventions.[27,36,37,43] Also consistent with our findings, women from other African countries including other provinces in Zimbabwe have reported that spouses do not allow them to seek screening for various reasons.[5,26,36] This includes discomfort at their wives' bodies being viewed by male health workers.[37] Interestingly, a study conducted in Ghana revealed that men are ready to support their partners if they are well informed on the fundamentals of cervical cancer screening[43]. This finding validates the need for male involvement in all sexual and reproductive health programmes.

Regards family members' disapproval for screening identified in this study, a Kenyan study by Lunsford et al[37] also revealed that family members tend to judge and talk about women who seek screening and this results in women not disclosing their intentions on screening for fear of being scrutinised and discriminated against. This has implications for the successful implementation of the VIAC programme.

5.0 Limitations of the study

This study is limited by the use of the cross-sectional study design that makes it difficult to establish causal relationships between barriers to cervical cancer screening and other variables. Participants in this study were restricted to the 25-50 years age group although younger sexually active and older women are also eligible for screening. The study was also conducted in only 10 out of the 34 electoral wards in the district. It is recommended that future studies be conducted at a broader level with a broader study population.

6.0 Conclusions

The burden of cervical cancer remains unacceptably high in most low- and middle-income countries due to inequalities in the implementation of cervical cancer screening programmes. Cervical cancer screening offers hope for the prevention of the disease. Although Zimbabwe has adopted the low-cost VIAC 'see and treat' approach as its screening modality, utilisation of the service is inundated with numerous challenges at the individual, interpersonal, community and health system levels that prevent women from screening.

The major conclusions of the study are that knowledge on cervical cancer screening is low among eligible women in Gwanda district due to a combination of interrelated factors at the individual, interpersonal, community, and health system levels of influence. Key health system barriers that prevent the use of VIAC screening services are the lack of effective educational programmes that promote screening and the unavailability of screening services at primary health facilities. This makes the service inaccessible to most women. Socio-cultural practices also play a key role in hindering women from screening. This study raises implications for policy and practice.

The MOHCC needs to develop effective health education programmes on cervical cancer screening supported by appropriate physical and financial infrastructure to increase women's access to screening services. Involving communities in the development and implementation of VIAC programmes is crucial for addressing socio-cultural norms that have a negative impact on screening. All this calls for sustained political commitment.

7.0 Declarations

Authors' note

FM, a PhD in Public Health student at Stellenbosch University conceived the study, collected and interpreted data, and prepared the draft manuscript. VS and YT, the supervisor and co-supervisor of FM both guided the conceptualisation of the study and the research process, verified data and reviewed and edited the manuscript. PS analysed the data. All four authors read and approved the final version of the manuscript to be published. Data used in this study are available upon reasonable request from the corresponding author. Ethical approval was obtained from the Stellenbosch University Health Research Ethics Committee (HREC Reference # S18/10/217) and the Medical Research Council of Zimbabwe (Reference # MRCZ/A/2426). Permission to conduct the study was granted by the Ministry of Health and Child Care, Zimbabwe, and written informed consent was obtained from all study participants.

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Conflicts of Interest

The authors declare no potential conflicts of interest

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Chapter 7: A qualitative study of health providers' perspectives on barriers to cervical cancer screening in Gwanda District, Zimbabwe

This chapter which addresses the fourth study objective is presented as a manuscript and is ready for submission to the journal *BMC Public Health*. The study is a component of a project that used sequential mixed methods to determine barriers to cervical cancer screening in Gwanda district, Zimbabwe. The first phase, a cross-sectional quantitative survey which targeted women at household level revealed a screening rate of 30.05%. This was followed by focus group discussions with the same study population to determine what they perceived as barriers to screening. Findings from the survey and focus groups motivated the need to further investigate health providers' perceptions on factors that hinder women from accessing screening services.

Abstract

Background: Cervical cancer is a preventable disease, yet it remains the most common cause of cancer deaths among women in Zimbabwe. Previous studies have shown that wide coverage of quality cervical cancer screening can reduce the incidence of the disease by up to 80%. Utilisation of screening services however, remains low in Zimbabwe. No known studies have examined health providers' views on the barriers to cervical cancer screening. This study therefore aims at determining the barriers to cervical cancer screening in Gwanda district, Zimbabwe, from the perspective of health providers.

Methods: This qualitative study used in-depth interviews to collect data from twenty-five health providers of different work categories and working at different levels of health care in the district. These included community health workers, nurses at rural and urban primary health facilities, nurses at departments that provide health services to women at the screening hospital, nurses and doctors that provide screening-related services and nursing administrators at hospital and district levels. Data were transcribed verbatim and analysed using framework thematic analysis.

Results: The major barriers to screening were identified as a lack of adequate knowledge on cervical cancer and screening among both women and health providers at an individual level, inaccessibility of screening and treatment services for rural communities and insufficient human and material resources for the programme at a health system level, socio-cultural and religious counter-beliefs at a community level, and lack of male partner support at an interpersonal level.

Conclusions: Women face challenges in utilising screening services at multiple levels of influence. These barriers are interrelated and an attempt at addressing the challenges at one level has the effect of increasing the barriers at another level. For programme efficiency and effectiveness, strategies to address the knowledge deficit should be matched by the availability of accessible and affordable screening and treatment services. The findings of this study have implications for policy and practice with a call to address the individual, interpersonal, community and health system barriers to cervical cancer screening synchronously.

Keywords: cervical cancer, cervical cancer screening, barriers, health providers, Zimbabwe

1.0 Background

Cervical cancer, a malignant disease caused by oncogenic strains of the human papillomavirus (HPV) poses a significant public health threat to women globally, and particularly in Africa (1). Worldwide, cervical cancer is the fourth most frequently occurring cancer among women (2), second most frequently occurring in Africa (3) and the most frequently occurring in Zimbabwe (4). Zimbabwe thus carries a high burden of cervical cancer and ranks fourth among the top 20 countries that have the highest incidence in the world (2).

In its quest to prevent and control cervical cancer globally, the World Health Organization (WHO) has endorsed a life-course approach, which consists of a series of age appropriate and cost-effective interventions that target the disease across the continuum of a woman's life (5). These evidence-based strategies include: prevention of infection with HPV strains that cause cancer, screening for pre- and early cancer, diagnosis and timely treatment of cancer, and palliative care (6). Distinct from other cancers, an almost 100% prevention rate of cervical cancer occurrence is attainable through HPV vaccination of young girls before sexual debut, and quality screening coupled with treatment of precancer lesions, which make it ideal for primary and secondary prevention programmes (7).

Despite primary and secondary preventive measures being available to combat the disease, an increase in the cervical cancer burden continues to prevail in Zimbabwe. In 2018, the disease accounted for 36.7 5% of all new female cancers and 24.8% of all female cancer deaths, up from 34.5% and 22% in 2012 respectively (4,8). Evidence suggests that poor access to prevention, screening, and treatment contributes to 90% of deaths from cervical cancer in low and middle income countries (LMICs) such as Zimbabwe (9). Effective implementation of HPV vaccination and screening could greatly reduce the occurrence of cervical cancer with its related mortality (2).

Armed with evidence regarding the known protective effects of screening that have the potential to reduce the incidence of cervical cancer by as much as 80% if the quality, coverage and follow up of screening were increased (10), the Ministry of Health and Child Care (MOHCC) embarked on a national screening programme in a phased approach in 2010, based on Visual Inspection with Acetic Acid and Cervicography (VIAC) 'see and treat' method (11). VIAC clinics have been set up at different levels of the health system including all central, provincial and district hospitals, and at some lower level health facilities (11). Screening at public health facilities was offered for free, in an attempt to make the service affordable to a majority of eligible women. In addition, national awareness campaigns have been on-going since 2016 and the number of screening centers increased (11). This resulted in improved knowledge about cervical cancer and the VIAC programme (12).

The last conducted demographic and health survey in 2015 estimated the national uptake of screening at 13 % (13). Low screening uptake is nevertheless not peculiar to Zimbabwe as almost similar rates have been observed in other developing countries. Sub-optimal screening coverage ranging from 0.8-26.5 % has been reported in other African countries such as Tanzania, Uganda, Sudan, Kenya, Ethiopia, Ghana, Malawi,

eSwatini and Zambia (1,14–21). This is in direct contrast to high screening rates prevalent in developed countries, that have been attributed to effective screening programmes (22).

Studies that primarily focused on barriers to cervical cancer screening have been conducted at two rural districts in Zimbabwe (23,24). The scope of these studies was limited to assessing screening barriers from the perspective of women who were the recipients of the service. In the most recent study, women cited unavailability of screening services at local health institutions, long distances to screening institutions, and cultural and religious prohibitions as the major barriers to accessing screening services (24).

This study proposes that it is equally important to understand the factors that negatively impact cervical cancer screening from the perspective of service providers. The main objective of this study, therefore, was to bridge this gap between the service providers and the recipients in the manner the barriers to cervical cancer screening are understood. The justification for including healthcare providers was to gain a deeper understanding on the barriers to screening especially those related to the health system. Findings of the study could influence modification of current interventions to improve the uptake of screening services in Zimbabwe. Considering that cervical cancer is a disease that is preventable in its early stages, it is important that barriers to screening be overcome in LMICs (25).

1.1 Theoretical Framework

The socio-ecological model (SEM) adopted from Kaufman and colleagues (26) provided guidance in conducting this study, combined with the WHO health system framework to complement the health systems theme of the SEM (27). SEMs recognise that individual health seeking behaviours are not just an individual decision, but are considerably affected by, and also affect the social environments that both shape and are in turn shaped by multiple levels of influence (28). The interplay of individual characteristics with the environments within which they are embedded determines the action that an individual will eventually take (28,29).

In Kaufman and colleagues' model, the outcome of any interaction is regarded as being influenced by individual, interpersonal, community, health system and structural factors (26). The individual level relates to micro-level factors that have a direct impact on an individual such as their knowledge, perceptions and beliefs, and socio-demographic characteristics (26). The interpersonal level refers to family and other social networks and the influence they have on an individual, including social support (26). The community level has to do with influences at a larger group level that include cultural and societal norms, while the health system level focuses on factors that relate to the quality of health services provided, and the availability of resources (26). Finally, the structural level entails the macro-level factors that indirectly affect health seeking behaviour which include performance of the economy, political climate and policies (26).

The WHO health system framework has six building blocks namely; health services delivery, health workforce, health information systems, essential medical products, vaccine and technologies, financing, and leadership and governance. Inadequacy or inefficient application of each of the six pillars creates barriers to

161

screening, while availability and effective application of the pillars have the potential to provide screening services that are responsive, efficient and fair to achieve the best outcomes (27).

The SEM consequently provided an opportunity to examine multifaceted elements that contribute to the uptake or non-uptake of cervical cancer screening services from a hierarchical perspective.

2.0 Methods

The current study used an exploratory qualitative study design and collected data through in-depth interviews of health providers to build on, and best explain the initial findings from the quantitative phase and focus group discussions (FGDs). This triangulation enhanced an in-depth understanding of what are considered as barriers to cervical cancer screening in Gwanda district.

2.1 Study setting

The study was conducted at Gwanda Provincial Hospital, a tertiary health institution that provides VIAC services in the district, and at five primary health institutions located in the electoral wards that were part of the study sites for the quantitative survey conducted in June – July 2019. The provincial hospital is a referral facility for the whole of Matabeleland South province of Zimbabwe that serves six districts. The site was chosen by default as the facility that offers screening services in Gwanda district. The facility uses the 'screen and treat' method for women screened at the provincial hospital, and the 'screen and refer' method for women screened at outreach clinics.

Women who test VIAC positive and require treatment such as loop electrosurgical excision procedure (LEEP) are booked for another day although cryotherapy is done by the nurses during the procedure if the client is agreeable. For screening conducted through mobile clinics in rural communities, women who require treatment are referred to the provincial hospital for treatment procedures which could be cryotherapy or LEEP, a procedure performed by doctors. The five primary health facilities were purposively selected from the same 10 electoral wards in which the quantitative survey was done, informed by location of the facility and patient turnover; three from the rural areas and one each from the urban and mining areas.

2.2 Sampling procedures and sample size

Data were collected through in-depth interviews of purposively selected health providers that included personnel involved in the VIAC programme in an administrative, clinical or health education and awareness creation role across the levels of health care (Table 1).

162

Table 22: In-depth interview participants by work position and area of operation

Position	Area of operation	No. of participants
Doctors	Gwanda Provincial Hospital	2
Nurse Administrator	Gwanda Provincial Hospital	1
Community Health Nurse	Gwanda District	1
VIAC trained nurses	Rotating between Gwanda Provincial Hospital and Phakama urban clinic	3
Non-VIAC trained nurses	Gwanda Provincial Hospital	6
Non-VIAC trained nurses	Primary Health Facilities	5
Community Health Workers / Health Promoters	Community level	7
Total		**25**

The sampling process was guided by the hospital and district health executive teams who provided lists of potential participants from the various health facilities, and advised staff to assist the researcher by providing the required information. None of the health providers approached declined to participate. The sample comprised of community health workers (CHWs) from each of the selected electoral wards. The same cadre is referred to as 'Health Promoter' in the urban set up. Unlike the rural health centers (RHCs) that serve only one electoral ward, the urban clinic has 10 electoral wards in its catchment area, and the mine clinic serves several compounds stratified according to the work grade of its employees. Consequently, two CHWs were each selected from the urban and mining settings. One nurse was selected from each of the five primary health facilities and from the provincial hospital departments that attend to women (Outpatients Department, Opportunistic Infections Clinic (OIC), Family Health Services department, Female ward, Paediatric ward and the Maternity Unit). In addition, VIAC trained nurses and the hospital and district health executive team members were selected as key informants.

The sample size of 25 was influenced by the heterogeneous nature of the study population that served as key stratifiers to obtain information from different levels of the health system. Specifically, Dworkin (2012) recommends that 25-30 in-depth interviews are generally accepted as the estimated point at which saturation is likely to occur, with sufficient data to allow for identification of a broad range of thematic issues (30).

2.3 Data collection procedures

Preliminary visits were made to the hospital and district health authorities during the first phase of the study and communication maintained until the qualitative phase was completed. Telephone calls were made one week and a day before the scheduled data collection dates for the current study to recruit participants and confirm their participation. The objective was to explain the purpose of the study in advance so as to engender trust and ensure a credible research process. For consistency in data collection, in-depth interviews were conducted by the first author covering issues that included prevalence of cervical cancer, community perceptions on cervical cancer and screening, demand creation strategies for screening, perceived barriers to cervical cancer screening and how the barriers could be overcome. Interviews started with the community-based health workers followed by nurses from the primary health facilities and hospital departments and lastly, the key informants.

The interviews were conducted in English for the professional health workers, and in the local Ndebele language for the community based health workers, which were continued until data saturation was achieved (31). Data were collected using a semi-structured in-depth interview guide developed from the research questions, study objectives, and the SEM themes that guided the study. A digital voice recorder was used with the participants' informed written consent.

The interview guide was pretested on two nurses, one from the tertiary facility which provides screening, and the other from a rural primary health facility, to ensure that the questions were appropriate and relevant for the target group. Modifications on the interview guide were applied for the main study based on the feedback that was provided. Data from the pretests were not included in the analysis. Anonymity of participants and the confidentiality of information they would provide was assured throughout the interview processes.

2.4 Data collection processes in response to COVID-19

It should be noted that data collection for this phase of the study took place in January 2021 during the second wave of the COVID-19 pandemic in Zimbabwe. Relevant WHO and MOHCC guidelines to minimise the risk of COVID-19 transmission were adhered to. Potential participants were first screened through a brief history check of current illness and temperature checks, and hands sanitised before interviews were conducted. Both the interviewer and participants properly wore surgical face masks and maintained a physical distance of at least one meter throughout the interview. In addition, the first author kept themselves updated on the latest information on this novel disease throughout the data collection period in order to respond timely to any new evidence and developments in conducting the data collection process.

2.5 Data analysis

Data analysis used the framework thematic analysis method (32). Verbatim transcription of audio-recordings reproducing all words spoken and emphasised, and sounds made was done following each interview (32). CHWs' interviews were then translated into English by the first author. To ensure validity of data, the

transcripts were cross checked for accuracy through replaying the digital audio recordings several times (33). All transcripts were read and re-read to familiarise with the data prior to coding. Based on the acquaintance with the data, coding was then done with the aid of the Web based ATLAS.ti software followed by sorting and grouping the generated codes into potential subordinate themes.

The analysed data were rechecked to identify any codes that could have been missed, and for contradictory results within interviews that would necessitate further analysis. Iteratively, subordinate themes were arranged under the key superordinate themes guided by the theoretical framework. The themes are presented as the levels of influence based on the SEM and form the basis for the analysis presented. Verbatim quotes from participants have been used under each theme to validate the findings. The second author who is an expert in qualitative research reviewed the codes and provided feedback to reach an agreement on the codes.

3.0 Results

Four thematic areas predicted a priori from the theoretical framework as barriers to cervical cancer screening were: individual factors, interpersonal factors, community factors and health system factors. A fifth unanticipated theme emerged from the data that could fit under none of the four and was termed 'structural barriers'. Table 2 presents results of the quantified barriers to cervical cancer screening, thus illustrated to provide a weighted depiction of barriers by level of health care.

Table 23: Identified barriers to cervical cancer screening

Barriers to cervical cancer screening	Number of responses by level of health care				Total
	Key Informants	Hosp based nurses	Primary level nurses	CHWs	
INDIVIDUAL FACTORS					
Women lack adequate knowledge on cervical cancer and VIAC	13	7	5	11	36
Financial constraints	4	3	7	5	19
Fear of procedure	2	1	3	1	7
Fear of a cancer diagnosis	2	1	1	3	7
Women lack awareness on VIAC	5	2	0	0	7
Myths and misconceptions	2	0	2	3	7
Low risk perception	1	2	1	2	6
Apathy	1	0	1	3	5
Negative attitudes towards screening	2	0	1	1	4
Low socio-economic status	2	1	1	0	4
Poor health seeking behaviours	2	1	0	0	3
Women too busy	0	0	1	1	2
Mobility of target population	1	0	1	0	2
Fear of HIV test	0	0	1	0	1
HEALTH SYSTEM RELATED BARRIERS					
Screening and treatment services inaccessible to rural communities	6	2	2	5	15
Lack of consistency in outreach services	6	0	4	3	13
Nurses and CHWs lack adequate knowledge	1	5	2	4	12
Gap in outreach services due to partner's requisites	4	0	4	3	11
Shortage of VIAC trained nurses	6	2	1	0	9
VIAC programme underfinanced	4	3	2	0	9
Lack of adequate equipment for screening	5	1	2	0	8
Negative staff attitudes & lack of confidentiality	4	0	2	1	7
Inadequate screening sites	4	1	0	1	6
Inadequate demand creation strategies	4	1	1	0	6
Lack of adequate transport for outreach services	3	0	2	0	5
VIAC nurses multitasking – general staff shortage	3	2	0	0	5

Loss to follow up	2	0	1	1	**4**
LEEP specimens tested externally – delay in treatment	3	0	0	0	**3**
VIAC clinic closed during weekend and public holidays	3	0	0	0	**3**
Poor infrastructure	1	2	0	0	**3**
Long distances from communities to primary health facilities	0	0	2	1	**3**
VIAC nurses lack motivation	1	1	0	0	**2**
Long waiting periods	1	0	0	1	**2**
Non- availability of IEC /educational materials	0	0	1	1	**2**
Power outages	1	0	0	0	**1**
COMMUNITY FACTORS					
Socio-cultural and religious beliefs	5	6	6	6	**23**
Fear of stigma and discrimination	2	1	0	2	**5**
Modesty issues	0	0	1	2	**3**
Women undermine VCWs	0	0	0	2	**2**
Gender of service provider	0	0	0	1	**1**
INTERPERSONAL FACTORS					
Lack of partner support	2	2	3	3	**10**
Lack of support of from family members	0	0	1	0	**1**
Peer influence	0	1	0	0	**1**
UNFORESEEN CIRCUMSTANCES					
COVID-19 restrictions	4	1	1	0	**6**

Relevant verbatim quotes from participants of different heath care levels followed by their work positions are used to support the various themes and enhance validity of the results.

3.1: Theme 1: Individual factors

Participants across all levels of care highlighted barriers to screening that included women's poor understanding of cervical cancer as a disease and the benefits of screening, financial constraints, perceived low risk for cervical cancer, and psychological barriers such as fear of the screening procedure and a positive screen result. Lack of awareness about the VIAC programme, apathy, and negative attitudes towards screening, poor health seeking behaviours, lack of time, and fear of detection of other infections during screening were other barriers reported.

3.1.1 Inadequate knowledge and lack of awareness about cervical cancer and VIAC services

Knowledge barriers were cited as the perceived major obstacle to screening by most participants irrespective of level of operation. Participants alluded to a very wide knowledge gap between what women know about cervical cancer and screening, and what they are supposed to know, considering the high burden of the disease. Of chief concern was that women possess just the barest information on the disease and reason for screening. Hence, this does not give them the drive to make decisions on screening because they are not well informed. There was concurrence among participants that more still needs to be done to bring the community knowledge levels on this topical issue to where they are supposed to be. It was revealed that some women are not even aware of the VIAC programme and are therefore unlikely to seek the service.

"I think people who have knowledge on VIAC are very very few compared to the number of people who need to be screened...... they will tell you they had never known there is something like this that exists". (Doctor 1)

*"I think most of them still need more information on cervical cancer screening because [of] the [*low*] turn up of clients…...... especially women coming from the rural areas, people don't know much."* (VIAC Nurse 1)

"Women have not yet received enough information…. which would make them fully understand the importance of screening. ….......that is why many have not been screened. …...... they have little understanding of the disease……. The problem is that the information comes as highlights and women remain with many questions which are not answered. What is needed is full information to the people." (CHW, mining community)

On the contrary, a few participants indicated that women had the necessary knowledge on cervical cancer and screening as reflected in the quotes below.

"……the community is fully aware of this disease and the screening programme that is taking place because we do campaigns regularly……and also in our day-to-day contact with our clients, as they come to our clinic, we give them health education talks on cervical cancer". (Nurse, urban clinic)

"People know about this programme because it's talked about everywhere." (CHW, rural community 2)

168

3.1.2 Financial constraints

Economic challenges related to transport costs for travel to the provincial hospital where screening is done, and treatment costs for women who test VIAC positive and require LEEP to be performed, was viewed as another hindrance to screening. Whereas screening is free, women are required to pay for associated services such as LEEP and laboratory fees for a specimen collected during the procedure.

"……… the major issue is distance to Gwanda. People have no money to go there". (Nurse, mining clinic)

'..... when they think about how they will have the disease treated since they don't have money for treatment. That's one of the main reasons which make women not screen". (CHW, rural community 2)

Some women were allegedly too busy to attend VIAC services, especially if they were free of pain. Self-employment is predominant in the district and women will endevour to remain in their income generation projects as much as they can to minimise on loss of income.

"Women ….... will tell you they are too busy making a living because you see, most women here are vendors, so they say by coming to the clinic they lose money". (Health Promoter 2, urban community)

Still related to financial issues, it came to light that the target population for screening is mobile in its pursuit to make a living. Therefore, chances of them being missed with information on screening are very high as they are rarely found at their places of residence and rarely attend health services.

"…… our community is mobile, and people are out on gold panning and at times maybe this information might not reach them because everyone is up and about" (Nurse, urban clinic)

"……….. in some areas men go out gold panning with these young women, so it's not easy to reach those we need yet that is the age group we are targeting. You only find young girls and old people in the homes. The middle aged are out there with partners who are digging gold". (Community Health Nurse, Gwanda district)

3.1.3 Psychological barriers

Women reportedly opt out of screening because they fear a positive result that is associated with psychological trauma from a 'supposedly' incurable disease. Women are scared of the procedure based on non-factual information they receive from acquaintances who have been screened, or out of mere speculation. Negative attitudes towards screening arise from myths and misconceptions amongst which is the perception that the procedure is painful, and that the same unsterilised instruments are used between clients. This leads to lack of confidence in the VIAC procedure as women fear acquiring some infections from re-use of dirty instruments. Women also give themselves a false sense of security from believing they are not at risk of developing cervical cancer.

"………. some are afraid of VIAC. Our people are very spiritual, and they are human beings. There are people who are saying 'I would rather not know that I have cancer so it's better not to screen". (Doctor 2)

169

*"The information which always circulates in the community is that VIAC is painful. The instruments they use mmmmh, and they re-use that instrument before they clean. So, when a client comes, we really have to show her the sterile pack that is sealed". (*VIAC Nurse 3)

"They think that cervical cancer happens to some other women and not all women". (Nurse, Paediatric Ward)

3.1.4 Apathy and poor health seeking behaviours

Some women seemingly exhibit indifference to screening even if information on VIAC is shared with them repeatedly. The concept of disease prevention is still abstract to them and they worry more about treatment when they have a medical problem.

*"W*omen are reluctant to stand up and go for screening until there is a problem*"*. (CHW, rural community 3)

"The challenge now is that in the screening for cervical cancer, we want to pick it before it becomes cancer. For someone to look for bus fare for something which does not cause pain to them is not likely to happen". (Doctor 1)

"We usually have challenges on the uptake of new programmes so few women have been screened. But I can safely say from 2019, the uptake is improving" (Nurse, RHC)

3.2: Theme 2: Health system related barriers

The nature of health system related barriers identified were congruent with the responsibilities that different cadres have in the VIAC programme. Participants at the administrative level identified challenges more related to the overall functioning of the programme including policy issues, whereas VIAC nurses were more concerned about barriers that affect the performance of the programme at implementation level. Nurses not involved in screening and community-based health workers mostly presented barriers related to access of the service. Inaccessibility of VIAC and treatment services for rural communities was a cut across challenge cited by most participants at all levels of health care.

3.2.1 Inaccessibility of screening and treatment services to rural and mining communities

The provincial hospital and urban primary health facility both located in Gwanda town, are currently the only public health facilities that provide VIAC services in the district. Women who reside in rural and mining areas have to travel to Gwanda town if they wish to be screened. An outreach team coordinated by the provincial hospital and funded by a partner, Organisation for Public Health Interventions and Development (OPHID) provides periodic mobile screening services at RHCs. Participants underscored the inadequacy of screening sites in the district and recommended that all health facilities should provide VIAC to make the service accessible to all potential users, especially in the rural areas. This could also reduce the period women have to wait before they can be screened.

"It's not adequate to have only two screening units. Even the numbers that we screen per day in general, they are quite too high for two units. So, accessibility of services becomes a challenge because of inadequate number of units that are offering services". (Doctor 1)

"Currently in Gwanda district it's just the hospital doing screening but recently Phakama clinic [urban council clinic] has also started screening but it does not help much because it's still in Gwanda town. But we've got some clinics in the rural areas, but screening is not done there………" (VIAC Nurse 2)

Despite the provision of VIAC services to rural based women through outreach services, some women still cannot access screening due to long distances from their homes to the RHCs.

"Some people are willing to be screened but most have failed due to transport problems [from their homes to the nearest RHC]. Some are staying at a distance of about 30 km from here so it's very difficult to obtain the services.*" (Nurse, RHC 1)*

"Some say the distance, even when outreach services come to the clinic, distance from their homes……..."(Nurse, RHC 2)

3.2.2 Lack of consistency and gap in outreach services

The capacity for screening has been increased through provision of VIAC services at RHCs using mobile clinics in collaboration with OPHID. Participants however indicated that the outreach services are not consistent, and women still have to travel to Gwanda to access screening. In addition, the implementing partner's target group for screening is known Human Immune Deficiency Virus (HIV) positive women that are registered for antiretroviral therapy (ART), and aged 25-49 years. This targeted screening excludes other women in the rural areas who wish to be screened. Participants suggested that screening be open to all women with no restrictions imposed. Participants expressed concern on the outreach team's lack of adequate equipment which at times resulted in women being turned away without being screened. Another challenge identified was lack of information flow between the outreach team and clinic staff, a situation that increases the rate of loss of follow up since women screened at mobile clinics need to access treatment in Gwanda. *"The problem we have is with continuity. Programmes and interventions come; people take them, then the programme disappears [outreach services]. When it resurfaces, people will not come. Interventions which are introduced should be continued". (*Community Health Nurse, Gwanda District)

*"……….. the outreach clinics are being funded by OPHID, but they are not done on regular basis. At the moment they were not going because of funds." (*VIAC Nurse 3)

"For now, only those who are HIV positive are the ones who are screened. Only a few who are HIV negative are screened. They [Mobile team] come......may be after six months or so. I recommend that they scrape the age group and HIV status as their criteria for screening and screen everybody. Also, they should come more frequently not after such a long time". (CHW, rural community 2)

However, the support provided by partners was acknowledged by one key informant who also highlighted the need for the MOHCC to commit to establishing more screening centers, and not depend on mobile services for increasing screening coverage.

*"One of the things that I feel is important is that we appreciate that there are a lot of things which we have achieved which we would not have managed to achieve without them. Unfortunately, partners have their requisites and the way they want things to be done. Although there is a gap in the service, if someone is giving you something you can't dictate. So, I think it's up to ……. the Government and Ministry of Health to say the burden of cervical cancer is too high to be depending on mobile clinics. Mobile clinics are just doing what they can now but that's not the best. The mobile clinics should be there to complement the existing services. Depending on a partner to come through mobile clinics may not do much to address the current cervical cancer burden." (*Doctor 1)

Regards screening, participants highlighted that:

"When they [outreach team] come, the turnout is good. They work from morning up to 6pm and even run out of sterile equipment and sometimes women return home without getting screened". (Nurse, RHC 2)

Rural Health Center staff and CHWs also indicated that they had no access to records of women screened at outreach clinics within their catchment areas and this makes it difficult to provide them with individualised health education.

 "So, the mobile team brings their registers, screen our clients and go back with that register. They have to make it a bit easier for us to know who tested positive so that follow ups are done on those women and we be the ones who compile those records" (Nurse, RHC 3)

"There should be a system where if a woman tests positive on screening, the clinic lets us know so that we make a follow up for them to go to Gwanda. Now we have to ask the women and some of them are not free to disclose to us if they test positive" (CHW, rural community 1)

3.2.3 Inadequate knowledge on cervical cancer and screening among health care providers

Although CHWs and nurses not attached to the VIAC clinic do not screen women for cervical cancer, they are expected to educate them on the disease and motivate them for screening. Participants were however concerned that the untrained cadres especially CHWs lacked adequate knowledge to effectively mobilise women for screening. Subsequently, they are undermined by women who lack trust in the VIAC related information they disseminate. This further contributes to gaps in the access of screening services which can be attributed to lack of training on VIAC processes among health-care providers. Participants expressed the importance of equipping all nurses and VCWs with up-to-date knowledge on the VIAC programme even though they are not involved in screening to ensure comprehensive dissemination of information to women. *"………. every nurse or department [should] be well versed with VIAC screening because it must not be taken for granted that*

172

*nurses know because that is not always the case. So, if every nurse could be trained in VIAC....." (*Nurse, Female Ward*)*

"The Community Health Workers do not have enough information to teach the women in their places of residence on the importance of cervical cancer screening and the causes and so forth". (Nurse, mining community)

"It would help for them [women] to get the information from people with better knowledge different from us. It's nice to have different people coming to talk about the same thing who are not part of the community. Some community members look down on us." (VCW, rural community 3)

In order to maintain proficiency in VIAC screening:

[Even] those doing VIAC should get regular training". (Doctor 2)

It also emerged that only programme managers and VIAC trained nurses were aware of the Zimbabwe Cervical Cancer Prevention and Control strategy (ZCCPCS) that drives the implementation of all the pillars of cervical cancer management in the country.

Awareness of the national policy on cervical cancer management and control among programme administrators and implementers is deduced from the following quotes:

"We have national guidelines [that] explain everything from A-Z on how they will proceed from screening to follow up…….The guidelines actually tell you what to do when a client comes for the initial assessment…..based on what they see during the examination, the guidelines tell you what procedures to follow …..It's all there." (Nurse Administrator, Gwanda Provincial Hospital)

Non-VIAC trained nurses were however not aware of these guidelines; a situation which negatively impacts the quality of information screening eligible women receive.

"Ah, we don't have [guidelines on VIAC screening]. We might benefit if we get them so that we can sensitise our clients in an informed way. But we tell them where to get the service." (Midwife, Maternity unit)

"No, we don't have any guidelines. I only asked for that chart from Gwanda Hospital (pointing at the chart) so that when we do health education, we also show them the stages of cervical cancer. It was my initiative to have that chart". (Nurse, RHC 1)

3.2.4 Shortage of nurses trained in VIAC

Shortage of VIAC trained nurses worsened by the turnover of those that were trained is apparently hindering effective delivery of screening services. The available nurses endure work overload which results in demotivation. In addition to screening, the same nurses also attend perform other duties which results in long waiting periods for women who want to be screened. Due to staff shortage, the VIAC unit closes during public holidays and weekends, consequently reducing the time available for women to access screening. The recent

173

addition of a resident Consultant Obstetrician and Gynaecologist to the provincial team has improved the efficiency of the programme. VIAC training is now conducted locally unlike previously when nurses were trained externally at a central hospital.

*"Nurses who are doing VIAC also have to see ANC patients and all that. So VIAC is just an addition, more work to be done on top of what she is doing which is already too much because they are under staffed already". (*Doctor 2)

*"There are very few [VIAC trained] nurses in the district, so with that identified gap, the Gynaecologist from the hospital I understand is organising a programme to train more nurses on VIAC". (*Community Health Nurse, Gwanda District)

"The challenge we have is that there are a few nurses who are trained to offer screening services. So, if one nurse is off sick and another is off duty, there is no one to do the screening". (VIAC Nurse 1)

Strategies to address the shortage of VIAC trained nurses have however been put in place:

"What we have started doing is to train our own VIAC nurses…….. recently we trained four nurses for that VIAC which brings the number of trained VIAC nurses to seven". (Doctor 1)

3.2.5 Inadequate financing of the VIAC programme

Notwithstanding the inadequacy of VIAC trained personnel, the programme is generally underfinanced. Evidence to this is the overall limited resources for the programme which constrains delivery of screening services in an accessible, affordable and efficient manner. Lack of adequate equipment, transport for outreach services, histology services, infrastructure, and information, education and communication materials present barriers to screening.

"If the VIAC programme is not properly financed as is the case now, it is bound to fail. More funding should be allocated for the programme". (Doctor 2)

"We have challenges of resources not being fully available. The Ministry should increase the budget for [VIAC] services ……......" (Nurse Administrator, Provincial Hospital)

"I*mprove funding for the programme so as to improve the support system because for every programme for it to be functional, there should be resources to use and there is not enough funding provided for this programme".* (Nurse, Maternity Unit)

Key informants also highlighted the incapacitation of the provincial hospital to process specimens collected during LEEP procedures for histology confirmatory purposes. Specimens are sent to the central hospital or private laboratories for testing. This results in delays getting the results and increases the chances of losing women to follow up.

"If the government can make sure that the local laboratories have the capacity to do the testing, this would reduce the turnaround time so that we have early interventions for these people because at times when we get the results back, the patient is no longer available. As we are improving the uptake of screening, the government should also improve the provision for testing to cut the turnaround time for early interventions". (Nurse Administrator, Provincial Hospital)

3.2.6 Inadequate demand creation strategies

It was observed that most nurses working in the various hospital departments do not place much emphasis on sensitising women for screening as they believe it is the responsibility of the VIAC nurses. Primary level nurses indicated use of educational talks to women whom they see at the clinics to create demand for screening. They also collaborated with community-based health workers to create awareness in their communities. Over and above these efforts, the district community health team conducts integrated outreach services in hard-to-reach rural areas. The purpose is to raise awareness on various health issues including mental health, environmental health, rehabilitation, VIAC screening and also to provide immunisation services.

"If a patient comes………it's just referring [them] to the antenatal clinic." (Nurse, Outpatients Department)

"……mostly we encourage them [women in the ward] to go for cervical screening, but we do not deal with that in detail. We only tell them to go to the VIAC clinic. That is where everything is done, that is where everything happens". (Nurse, Paediatric Ward)

VIAC trained nurses also stated that demand creation for cervical cancer screening was not adequate.

"……….. those who come to the hospital are the ones we target because they come to us, but we are not yet at that level where we reach out to people and we talk about it, give information so that the people can be informed so that they can come. We haven't reached that level yet". (VIAC Nurse 3)

On the other hand, one entry point department ascertains that information on cervical cancer and screening is given to all women they attend.

"[In] *our department, we make sure that every woman when they come for collection of their medication, we advise them to be screened for cervical cancer. We do not miss an opportunity to encourage them to be screened…………"* (Nurse, OIC)

3.2.7 Negative staff attitudes

Negative attitudes of service providers were identified as one of the reasons that discouraged women from screening. This was also linked to the shortage of VIAC nurses due to multi-tasking.

*"They [nurses] won't bother educating women because it will mean more work for them……. You will not get a nurse going around telling people about VIAC out of their own sheer will to get more work on their shoulders". (*Doctor 2)

"Other nurses are not friendly so women will spread the word and next time the [outreach] team comes, women won't go. They tell others that they were not treated well". (CHW 2, mining community)

In addition, women reportedly avoided screening because of the perception that some nurses violate confidentiality principles.

"They say the nurses go around talking about you, this thing of VIAC is about your private parts so they will go around telling people about you, ...I won't go to the hospital if a certain cadre is there....... [They] will go around telling people about my condition. (VIAC Nurse 3)

Table 3 gives a summary of health system barriers that contribute to poor access of cervical cancer screening in Gwanda district identified through application of the WHO health system framework.

Table 24: Application of the WHO health system framework in the identification of challenges that contribute to poor access of cervical cancer screening

WHO BUILDING BLOCK	IDENTIFIED BARRIERS TO SCREENING
Service delivery	Only two public health facilities provide cervical cancer screening and treatment services in the district.
	VIAC clinics do not operate during weekends and public holidays.
	Clients screened at outreach clinics in RHCs and mine clinics are referred to Gwanda Provincial Hospital for treatment if they receive a screen positive result.
	Gwanda Provincial Hospital's laboratory has no capacity to process LEEP specimens but sends them to a central hospital, which delays treatment processes.
Work force	Shortage of VIAC trained nurses, which reduces the time available for women to be screened.
Information	No coordination in health information management between outreach teams and RHCs. Effective use of screening information by RHC staff is hindered by lack of access to screening information. This impacts on the linkage with Gwanda Provincial Hospital for continued management of women who test positive.
Medical products, vaccines and technologies	Lack of adequate equipment necessary for screening
Financing	The VIAC programme is underfinanced, thus affecting availability of adequate equipment, skilled staff and provision of consistent outreach services to rural areas.
Leadership and Governance	ZCCPCS available but nurses in non-VIAC hospital units and primary health facilities not aware of its existence to enable them to effectively implement it.

3.3: Theme 3: Community factors

Socio-cultural and religious beliefs came out strong as barriers to cervical cancer screening and were reported by all categories of participants. Other community related barriers cited were fear of stigma and discrimination, modesty issues, and gender of service provider. Community involvement was suggested as key in bringing home grown solutions to increasing the uptake of screening.

3.3.1 Socio-cultural and religious beliefs

The district apparently has a certain religious sect that does not allow its members to attend health services as they perceive that to be a demonstration of lack of faith in God's healing powers. Cancer is also construed as a traditional illness requiring traditional management. This belief is widespread in the district inclusive of urban communities.

"………… issues of reproductive health among people in our communities are sensitive to talk about. When you talk about those things traditionally in our culture, you need to apply a lot of persuasion. ………….. You need to talk to them, sensitise them and go back time and again so that they understand". (Community Health Nurse, Gwanda District)

"Gwanda district has some cultures and religions which do not go to hospitals, so definitely those women are not aware of the health services offered in health facilities" (VIAC Nurse 2)

"There are some people who never set their foot in a hospital. They believe cancer things are caused by witchcraft, so they choose to go to prophets and traditional healers for advice". (Health Promoter 2, urban community)

While programmers may bring together an array of stakeholders to develop strategies meant to address barriers to screening:

*"It is also important to involve the community in these issues so that the programme will be more acceptable. Find out their concerns and ask them how best the service can be delivered considering their beliefs. They may even have some solutions which would permanently solve the problem. Do not decide for them, at times they can have better solutions for themselves". (*CHW 1, mining community)

3.3.2 Fear of stigma and discrimination

Women reportedly fear being spotted at VIAC clinics as they could be labelled as having cervical cancer. For outreach services, going for screening is a declaration that one is HIV positive, and that is not acceptable to some people concerned.

"………….. [For outreach services] OPHID they say they need to screen women who are HIV positive. That's what I think makes clients have that stigma so that they won't come for screening because if you go, it will be known that you are HIV positive". (VIAC Nurse 2)

"Others also don't want to be seen in the queue because she is afraid people will think she has cancer". (Health Promoter 1, urban community)

"………….. they are afraid of what others will say if she is screened and found with cancer". (VCW, rural community 2)

177

3.3.3 Modesty issues

VIAC screening is viewed as an intrusion into one's privacy and is reportedly one of the factors that deter women from screening. Women are concerned about exposing their private parts except during labour and delivery because then, they do not have a choice. They find the procedure embarrassing and culturally inappropriate. If a different method which does not entail exposing one's private parts could be used, more women could be willing to be screened.

"Women usually tell us that they don't like to be fidgeted around their genitalia". (Nurse, RHC 3)

"The other thing is that women don't want to expose their private parts (laughs). Honestly, they are not comfortable with that. That's why they are even reluctant to use the loop for contraception. They don't want to open their private parts. If screening was being done using a different method which does not involve private parts, maybe the screening uptake could increase". (CHW, rural community 3)

Still related to modesty issues, participants reported that women are not comfortable exposing themselves to male doctors, which was highlighted as a barrier to screening. Although currently VIAC screening is performed only by female nurses, they refer some clients to doctors for further management if indicated.

"What I have also noticed is that women do not like to be examined by males. For some treatments women are referred to male doctors and they are not comfortable with that". (CHW 2, mining community)

The view was supported by a key informant who stated that:

"………. examining an African woman [if you are male] sometimes needs a person to be vigilant ….......because it's considered culturally inappropriate". (Community Health Nurse, Gwanda District*)*

3.4: Theme 4: Interpersonal factors

Women's lack of emotional and financial support from their male partners reportedly hinders both VIAC screening and early treatment seeking for women who would have tested VIAC positive. This barrier was reported by all categories of health providers. Participants suggested that education on cervical cancer and screening should also target men to enable them to better understand the benefits of screening. Being knowledgeable on the subject could enhance their ability to provide the required support to their partners. Lack of support from key family members was also shown to present challenges for women in accessing screening.

3.4.1 Lack of partner support

Men either show indifference to screening, or for varied reasons openly refuse to support their wives on their decisions to screen.

"These young women, they are afraid of their husbands. If they are screened and test VIAC positive they are afraid what the husband will say. They will be afraid that they will lose their marriage because the husband will ask where she got the disease from." (Health Promoter 1, urban clinic)

178

"Most men are not bothered one way or another". (VCW, rural community 3)

On the contrary, one community-based health worker noted that husbands deny their wives permission to be screened because they lack knowledge on the benefits of screening:

"Others [women] fail to properly explain the programme to their husbands then the husband refuses for her to be screened because they will not be understanding what is exactly happening and why his wife should be screened". (CHW 2, mining community)

3.4.2 Lack of family support

Key family members were reported as having a significant influence on women's lack of participation in VIAC screening.

"The challenge that we often see is those who stay with their mothers in law. They are the women who will come later in need of such services telling you that they couldn't manage to come earlier in fear of explaining the reason for visiting the facility to their mothers in law." (Nurse, RHC 3)

3.5 Theme 5: Structural barriers

The COVID-19 pandemic was unanticipated and brought with it many challenges that affected delivery of cervical cancer screening services in the district. Firstly, travel was curtailed such that committed women could not travel from their rural homes to Gwanda town. Secondly, even for those women residing in Gwanda town, the number of people who could access health services was limited only to those that presented with acute illnesses and or needed a resupply of medication for chronic conditions. Consequently, screening services came to a halt due to the redirection of health care services. Frontline workers had to focus on COVID-19 prevention and control measures which were a priority over VIAC screening. This situation has greatly reduced the number of women who could have been screened during lockdown periods.

*"When COVID-19 came a lot of things closed down. That also included our VIAC unit. They were also slowed down since the era of COVID-19, including the clients that we had lined up for treatment; clients had been booked for treatment. So COVID-19 should I say brought its own unique challenges". (*Doctor 1)

"Especially with the Covid-19 in the picture, there are transport challenges. It's difficult and expensive to move from point A to point B". (Community Health Nurse, Gwanda district)

"I think its issues to do with this COVID-19, we cannot have many people coming to the clinic ……………. this issue of COVID-19 is a challenge, yes". (Nurse, urban clinic)

4.0 Discussion

This study determined the barriers to the uptake of cervical cancer screening from the perspective of health providers in Gwanda district, situated in the Matabeleland South Province of Zimbabwe. The socio-ecological model was used as a guide to ascertain the barriers to screening at multiple levels of influence combined with

179

the WHO health system framework. Individual, interpersonal, community, health system and structural barriers such as the COVID-19 pandemic were identified as factors that hindered the uptake of screening.

Women and health providers' lack of adequate knowledge on cervical cancer and screening, inaccessibility of screening and treatment services to rural communities, lack of adequate human and material resources for the VIAC programme due to underfunding, socio-cultural beliefs and lack of partner support were the main perceived barriers to cervical cancer screening at the different levels of influence.

At the individual level, the study identified wide gaps in knowledge on cervical cancer and VIAC screening especially in rural communities. Most women were aware of the VIAC programme from the ongoing awareness efforts but lacked optimal understanding of the disease, its prevention and control measures, how screening is performed, and the health benefits derived from screening. This information deficit prevents women from realising their risk for developing cervical cancer.

Women also preferred not to screen for fear of a positive result since according to their knowledge, the disease is untreatable. Furthermore, poor knowledge led to speculations on the intense pain that could be experienced during the procedure, this driven by the prevailing myths and misconceptions surrounding the disease and screening. These beliefs result in apathy and negative attitudes towards screening. Knowledge barriers with all associated undesirable perceptions that lead to low uptake of screening have been echoed in other studies conducted in low resource settings (34–38), including Zimbabwe (39,40).

Empowering communities with detailed and accurate information on the disease and screening procedures could avert ill-conceived information and increase knowledge on VIAC and subsequently the uptake of screening. This brings the need for awareness creation strategies to be creatively combined with comprehensive educational interventions targeting especially women in the rural areas and mines who have limited access to cervical cancer screening services. Educational interventions should be planned in a way that takes cognisance of the socio-cultural and religious barriers that hinder women from screening. This would ensure that women are not just aware of the programme, but are also well informed to demand the service. If women first understand the key issues around cervical cancer and the importance of VIAC, demand for screening could be enhanced.

Contrary to our finding on women's limited knowledge, a study conducted in Harare, Zimbabwe's capital city, revealed high knowledge levels on cervical cancer and its prevention and treatment (41). This could be explained by the fact that cervical cancer programmes are largely available in the capital city compared to other parts of the country.

In this study as in other low income settings (35,42,43), economic factors related to high transport costs to screening sites and treatment also presented a barrier to screening. Although screening is provided for free, the cost of investigations and treatment excludes some women from enjoying the full benefits of screening. Most women also fail to travel to the screening sites for lack of transport fares. A free full package of all VIAC

related services should be considered. Women may not see the need to be screened if they fail to get treatment for abnormal pathologies detected as a result of screening.

This study also identified factors at the health system level that constrain screening. The VIAC programme is faced with a critical shortage of human and material resources to deliver the service efficiently and effectively. The whole district relies on just two screening sites both of which are located in the urban setting. This renders the service not readily available to the rural populace.

Mobile clinics to RHCs funded by a partner are sporadic due to transport and other financial challenges including shortage of VIAC trained nurses and when they come, information on screening outcomes is not shared with the local clinic staff. Besides, some communities are located too far from RHCs to access screening services even if the mobile team came to the RHCs. Additionally, the funding partner has a specific high-risk group that it targets for screening. This further makes screening services inaccessible to a majority of rural women. Even at the provincial hospital, screening services are not available during weekends and public holidays due to shortage of VIAC trained nurses. Women with commitments that prevent them from accessing screening services during the week are thus disadvantaged by the operating times that are prohibitive to them.

These results are consistent with findings of previously conducted studies in Zimbabwe (24,41), and elsewhere in Africa (34,35,44). Likewise, unavailability of screening services at local health facilities and services not being always available at hospital level were identified as the barriers to screening. Since knowledge about VIAC is on its own not adequate to facilitate screening, the MOHCC needs to employ measures for improving the availability and access of VIAC services to the majority of women. This could be achieved through training more nurses on VIAC including those in RHCs and mine clinics in order to bring screening services closer to communities. Implementing this intervention would enable more screening sites to be opened and an adjustment made in VIAC clinic operating times at the provincial hospital to make the service readily available, given the availability of other required resources.

Flow of information from outreach clinics to primary health facilities should be facilitated by the health system to ensure effective follow up of screened women who require intervention at Gwanda Provincial Hospital. Furthermore, the provincial hospital in collaboration with its partner should consider combining screening with treatment services at outreach sites.

Another significant barrier identified at the health system level was lack of training of health providers on basic VIAC knowledge. As key figures in the education of communities on cervical cancer and VIAC, nurses and VCWs are expected to create the demand for screening. It however emerged that except for the trained nurses directly involved in VIAC screening, these cadres have inadequate knowledge on the subject and subsequently, demand creation strategies are very limited.

Findings of this study concur with that of another conducted in Zimbabwe which also revealed that health workers in RHCs lack knowledge on cervical cancer yet communities rely on them for health information (41). Still consistent with this study's findings, similar research conducted in Ethiopia and Northern Uganda also

found significant deficits in the knowledge on cervical cancer among nurses and midwives (45,46). This has implications for the success of the programme since these cadres play a primary role in the education and sensitisation of women for screening. Upgrading the knowledge of health providers at all levels of the health system without necessarily training them on performing the procedure is crucial for conveying accurate information and recommending screening to women.

Additional health system barriers to screening included poor infrastructure that necessitated VIAC services to be provided in an overcrowded antenatal clinic that offers little privacy. Lack of adequate equipment and supplies additionally made it impossible to provide screening at more than one hospital department. Equally important, lack of laboratory resources at the provincial hospital delayed treatment commencement for women who tested VIAC positive, a factor that could increase morbidity from cervical cancer.

All these factors at the health system level are largely due to under financing of the VIAC programme. General resource shortages related to cervical cancer screening programmes such as inadequate staffing (38,44,47), lack of adequate equipment and supplies (44,45), lack of adequate space for screening activities (38,44) and lack of laboratory resources for histology (45) have also been reported in other studies. Allocation of a budget commensurate with the programme demands should ensure availability of the necessary resources that make the VIAC programme available, accessible and affordable. There is need for Gwanda Provincial Hospital to consider engaging in public-private partnerships with the local mines in the district to strengthen its cervical cancer screening programme and improve accessibility to screening services.

Furthermore, socio-cultural and religious beliefs played a very major role in hindering women from cervical cancer screening at the community level of influence. The widespread community belief that cervical cancer is caused by witchcraft and other traditional insinuations associated with the disease deter women from seeking VIAC services. Consequently, women shun screening due to fear of the stigma and discrimination associated with a positive result. Some religious groups also prohibit their members from seeking health care in preference of divine interventions. As a result, women resort to consulting their churches, prophets, herbalists and traditional healers for any issues related to cervical cancer. This practice promotes poor health seeking behaviours as women will only present for medical care at late stages of the disease when available treatment options can no longer help.

Socio-cultural and religious beliefs have also been reported in other studies as deterrents to cervical cancer screening. Two studies conducted in the urban and rural settings of Zimbabwe revealed that traditional churches discourage women from seeking medical attention (48) and social and religious beliefs counted as major barriers for women to seek screening (24). Likewise, studies among Kenyan, Ghanaian and Nigerian women also revealed that religious and cultural factors related to their belief systems hindered the uptake of screening (36,49,50). Involvement of community and religious leaders as important stakeholders is critical in the planning and implementation of VIAC programmes. These cadres are crucial in bringing about change in the mindsets of their communities given their influence and the respect they demand culturally considering the dynamism of culture.

Consistent with findings of studies from Zimbabwe (51) and other parts of the world including developed countries like England and Canada (52,53), it emerged that women particularly of low socio-economic status suffer culturally grounded embarrassment at exposing themselves for screening especially if the procedure is performed by males. Although not commonly reported, peer influence was seen to play a role in the rejection of VIAC screening. This finding has been documented in other studies which revealed that the decision not to use cervical cancer screening was a function of many factors including social pressure (54).

The identified socio-cultural and religious factors are interrelated to knowledge barriers since knowledge is known to influence decision making for cervical cancer screening (54). This has implications on public health education efforts. Education strategies that include peer education should be packaged in a culturally competent manner that holistically addresses all facts on cervical cancer and VIAC. The outcome of such interventions should be communities that have adequate knowledge on the subject to dispel the myths and misconceptions and are empowered to develop the ability to make decisions against cultural norms that are opposed to VIAC screening.

Unexpectedly, CHWs expressed concern at being undermined by their communities in their dissemination of VIAC screening related information. This finding is surprising because CHWs are recruited from and chosen by their communities to provide health promotion interventions. Such selections makes it easy for CHWs to gain acceptance within their communities that have confidence in them (55). This perceived lack of confidence in CHWs by women in this study could be due to their limited ability to articulate the subject well, thus making the communities question their competencies. There is need to well equip VCWs with adequate information to raise awareness about cervical cancer and increase acceptability of the VIAC programme.

Additionally, this study found lack of social and financial support from male partners and other significant family members to be a key barrier at the interpersonal level of influence. Several studies have come up with the same findings (36,46,49,56). A study conducted in rural Ghana however revealed that men are willing to support their partners but lack knowledge on the benefits of screening (57). This was also highlighted in the current study. Educational initiatives on cervical cancer and screening should therefore be planned to deliberately involve men and whole communities in an endeavor to garner support for the VIAC programme.

This study moreover provides evidence that unavoidable and unanticipated occurrences may pose extraordinary challenges to cervical cancer screening. This was seen in the COVID-19 pandemic which saw the temporary closure of the VIAC units to curb the rate of transmission. Sustained disruptions could lead to increased risk to cervical cancer and precancer (58). This calls for the health system to develop contingency plans that address such health emergencies so as to hedge against an increase in cervical cancer morbidity and mortality.

5.0 Study limitations and strengths

This study is not without limitations. Firstly, the participants were purposively selected under the guidance of the hospital and district health executives who allowed time for the interviews to be conducted during working

hours. Participants may have felt under pressure to respond in a socially desirable manner that would not jeopardise their institutions. Anonymity and confidentiality were emphasised to minimise this limitation. Secondly, policy issues were not investigated in this study. Health system barriers linked to national policies on screening were therefore not identified and this could have affected the depth of the analysis. Thirdly, the interviews were conducted during the COVID-19 era when a lot of disruptions to the VIAC programme were prevalent thus confounding the barriers to screening uptake. Although the findings of this study may not be generalisable to other districts of Zimbabwe because of the qualitative approach that was used, they have implications for improving education and delivery of the VIAC programme that will reduce cervical cancer morbidity and mortality rates in the country. The strength of the study lies in the inclusion of grassroot level health care providers as part of the study population. This provided a holistic approach in the way barriers to cervical cancer screening are perceived.

6.0 Conclusions

The major barriers to cervical cancer screening were individual based, all linked to the inadequate knowledge that women have on cervical cancer and screening, and their low socio-economic status. Health system barriers emanated mostly from inaccessibility of the service to rural communities and lack of adequate resources to provide the service efficiently. Socio-cultural and religious beliefs contributed immensely to the barriers to screening at the community level while interpersonal factors contributed the least challenges to screening. Interrelatedness of the barriers at different levels of influence was demonstrated as alluded to in the socio-ecological model that was used. For example, although poor knowledge is affixed to the individual level, the health system makes a significant contribution since it has the mandate to provide that knowledge to communities.

 For the VIAC programme to be effective, these barriers require interventions to be applied in a parallel fashion at the different levels of influence. Creating knowledge without corresponding availability of screening sites and related sources will not solve the problem. Well designed and targeted educational strategies for health providers, women at the various areas of residence, men and community and religious leaders could address these barriers, supported by adequate resources for efficient and effective provision of the service.

Of primary importance is the need for the MOHCC to make decisive efforts on scaling up cervical cancer screening services to all public health facilities as espoused in the country's cervical cancer prevention and control strategy (11). This should ensure that all screening eligible women receive the service. In accordance with the WHO's framework for strengthening health systems, the MOHCC should commit to supporting all the six pillars of the framework to enable easy access to screening and treatment.

The findings of this study have some implications for public health practice as highlighted in relation to each of the five themes. Future evaluations investigating barriers to screening would benefit from including policy makers at the MOHCC level from which the national cervical cancer and control strategies are developed.

7.0 Declarations

List of abbreviations

CHW: Community Health Worker; HPV: Human Papillomavirus; IUCD: Intra-uterine contraceptive device; LEEP: Loop Electrosurgical Excision Procedure; LMIC: Low- and middle-income countries; MOHCC: Ministry of Health and Child Care; OIC: Opportunistic Infections Clinic; OPHID: Organisation for Public Health Interventions and Development; RHC: Rural Health Center; SEM: Socio-ecological model; VIAC: Visual Inspection with Acetic Acid and Cervicography; WHO: World Health Organization

Ethical approval and consent to participate

Stellenbosch University Health Research Ethics Committee (Reference number: S20/09/259), Medical Research Council of Zimbabwe (Reference number: MRCZ/A/2426), MOHCC, Provincial Medical Directorate for Matabeleland South Province and Gwanda District Medical Office granted ethical approval and permission to conduct this study. All participants gave written informed consent for participation and audio recording after information on the purpose of the study and the voluntary nature of participation had been provided. Personal information was de-identified from the transcripts and the same are kept secure with protected passwords on the authors' laptops.

Consent for publication

Not applicable

Availability of data and materials

The data sets used and analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors have no competing interests to declare

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Author contributions

FM conceived the study. YT and VS gave input into the design of the study and protocol development. FM wrote the proposal and collected data. YT and VS guided FM through the data analysis and write up of the first draft of the manuscript and subsequent versions. All authors read and approved the final manuscript.

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Chapter 8: Exploring the perspectives of women and health providers on male support for cervical cancer screening in Gwanda district, Zimbabwe

This chapter which addresses the third and fourth study objectives has been written as a manuscript and is ready for submission to the journal *PLOS ONE*.

Abstract

Introduction

Several studies have shown that male involvement increases the uptake of sexual and reproductive health programmes for improved family health outcomes. The role of men in reducing the burden of cervical cancer has however not been researched in Zimbabwe. It is for this reason that this study explores male support for cervical cancer screening programmes from the perspective of women and health providers in the Gwanda district of Zimbabwe.

Methods

Thirty-six women aged 25-50 years and twenty-five health providers with different roles in the cervical cancer screening programme participated in five focus group discussions and in-depth interviews respectively to provide qualitative data for the study. Data were analysed and presented using the thematic approach.

Results

The study provided evidence that men lacked knowledge on cervical cancer and its risk factors and prevention. Subsequently they engaged in sexual behaviours that increased their partners' risk for developing cervical cancer. Furthermore, men do not provide the necessary emotional and financial support for their women to access screening and treatment. Participants were optimistic that innovative awareness creation strategies and intense and sustained cervical cancer educational efforts targeting men could increase male partner support. Involvement of community leaders was seen as crucial in the facilitation of male involvement for programme acceptance and improved uptake of cervical cancer screening.

Conclusions

Male involvement is seen as an integral component of the cervical cancer prevention and control programme that has to be implemented in Gwanda district to minimise male partner-related barriers to cervical cancer screening. Further research focusing on men is required to identify specific knowledge gaps that would enable development of appropriate strategies that best involve men in cervical cancer prevention and control interventions.

1.0 Introduction

Male involvement is increasingly being recognised as central to the successful implementation of maternal and child health programmes worldwide (1). This assertion is premised on the decision-making role men exercise

within families and relationships, and the influence they have on women's health care decisions (2). The lack of men's support for sexual and reproductive health (SRH) programmes that include cervical cancer screening is seen as a barrier to utilisation of health services by most women (3).

While a progressive reduction in cervical cancer incidence and mortality has been observed in high-income countries due to effective screening and treatment programmes, the reverse holds true in most low and middle income countries (LMICs) (4). A systematic review on factors that affect uptake of cervical cancer screening in LMICs (5) revealed that lack of knowledge and awareness, psychological barriers that include fear of pain, structural barriers such as unaffordable and inaccessible screening services, and socio-cultural and religious beliefs including husbands' and family members' objection, prevent women from screening.

Men seemingly have a pivotal role to play in reducing the burden of cervical cancer (6). Providing financing for women's transportation to screening sites, emotional support and encouragement for their partners, and adherence to post treatment recommendations if precursor lesions are detected during screening (abstinence from sex for a specified period) offer an incentive for women to take-up screening (2). Inversely, male partners' disapproval of screening for varied reasons limits the prospects of women seeking the service.

Previous research has shown that men are keen to participate in SRH programmes that enable them to provide spousal support for health promotion activities (7). Moreover, their willingness to support their partners is correlated with increased uptake of SRH programmes such as family planning, voluntary Human Immunodeficiency Virus (HIV) counselling and testing, improved spousal communication and maternal health (7). Similarly, positive attitudes towards cervical cancer screening have been observed with men showing willingness to provide spousal support for their women in utilising the service (6,8). The limiting factor however, is their lack of knowledge on cervical cancer, how it can be prevented and the methods used for screening (6,8–10).

Men therefore indirectly add onto the burden of cervical cancer since the minimal and often incorrect knowledge they possess does not empower them to protect their partners from acquiring Human Papillomavirus (HPV), nor encourage them to get screened (10). Equally important, men increase the likelihood of their sexual partners to develop cervical cancer since a woman's risk is dependent less on her own sexual behaviour than that of her male partner (11). The risk is most likely affected by an increase in the chances of exposure to HPV from a high risk sexual partner (12) . Current scientific evidence compellingly demonstrates that voluntary medical male circumcision (VMMC) has a high protective effect against cervical cancer since circumcised men are less likely to harbour HPV under their foreskins (13). The circumcised status of a sexual partner is thus associated with a reduced risk of cervical cancer (11,13). Knowledge of this information could facilitate change in sexual behaviour and motivate the practice of circumcision among men to reduce transmission of oncogenic types of HPV, the virtually necessary but not sufficient causative organism for development of most cervical cancers (14) .

Male involvement in cervical cancer programmes is fundamental in reducing the incidence and deaths from this disease (6). Most men however consider safe motherhood issues to be the responsibility of women (3) and consequently show indifference on issues that relate to cervical cancer screening. Women may even be blamed for a screen result that shows presence of precursor lesions (10). The World Health Organization (WHO) hence recommends education of males on cervical cancer prevention and control to enhance support of their female partners' decisions on screening (4).

There is dearth of information on the extent to which men contribute to women's utilisation of the visual inspection with acetic acid and cervicography (VIAC) programme, the national screening method used in Zimbabwe. This study therefore explores women and health providers' perspectives on male support for cervical cancer screening in Gwanda district of Zimbabwe. Findings could serve to develop strategies for active male involvement in cervical cancer prevention and control programmes thus contributing to minimising barriers to screening.

2.0 Methods

2.1 Study population and design

This study was conducted in Gwanda district located in the Matabeleland South Province of Zimbabwe. The district consists of 34 electoral wards that include urban, rural and mining areas. The target population were healthy women aged 25 – 50 years, and nurses from the tertiary hospital that provides cervical cancer screening services. These cadres were selected from departments that deal with women in their day-to-day operations namely, Maternity Unit, Outpatients Department, Opportunistic Infections Clinic (OIC), Female Ward, Paediatric Ward and Family Health Services Unit. Nurses and Doctors attached to the VIAC clinic and Hospital, and District Health Administrators were also included as key informants. In addition to health providers from the screening institution, one nurse from each of the primary health facilities located in the study wards, and Community Health Workers (CHWs) servicing the selected villages were also targeted for the study that was conducted in January 2021. This study is the second phase of a sequential mixed methods research (15) that used an exploratory qualitative approach namely; focus group discussions (FGDs) with screening eligible women and in-depth interviews (IDIs) of health providers for data collection. The first phase of the study conducted between June and July 2019 employed a quantitative approach that collected data from women at household level on 'barriers to cervical cancer screening' using a semi-structured researcher administered questionnaire.

2.2 Sampling procedures

Participants for the FGDs were purposively selected as a subset from the same group of women that participated in the first phase of the study using maximum variation sampling technique, also known as heterogeneous sampling (15,16). This sampling strategy aimed at drawing out a sample with diverse characteristics to yield rich information that holistically addressed the research objective. Five FGDs were conducted; two each from the urban and rural wards and one from the mine setting according to the size of the

194

strata. This was based on Hennink et al's (17) guidance which suggests that data saturation is reached at the point at which at least one FGD from each stratum is included for studies that use stratification in sampling. Twenty-five health providers from different levels of health care with different roles in the provision of screening services namely awareness creation, educative, administrative and clinical were also purposively selected for IDIs.

2.3 Ethical considerations

All due ethical safeguards were observed before and during the entire research process. Ethical clearance for the study was obtained from the Health Research Ethics Committee of Stellenbosch University (Reference number S20/09/259) and the Medical Research Council of Zimbabwe (Reference number MRCZ/B/2426). Authority to conduct the study was granted by the Zimbabwe Ministry of Health and Child Care. Written informed consent was also obtained from the study participants. Anonymity of participants and confidentiality of information provided were assured. Participants were informed of the freedom to withdraw from participation at any stage of the study for whatever reason without suffering prejudice from the research team.

2.4 Data collection procedures

Data collection was conducted over two weeks by the first author and two research assistants trained in data collection procedures from the first phase of the study. The FGD question guide was pretested on a group of women that participated in the quantitative survey in an electoral ward that was not part of this second phase of the study. The instrument was refined to ensure clarity and appropriateness of the questions (18). FGDs each comprising between five and eleven participants were conducted to explore women's knowledge, attitudes and practices on cervical cancer screening, barriers to cervical cancer screening with probes used to elicit personal, interpersonal (including male partner contribution), community and health system related factors, and facilitators to the uptake of screening. Discussions which lasted between 60 and 75 minutes were conducted in Ndebele, the local language.

In-depth interviews for professional health providers were conducted in English, while Ndebele was used for CHWs. An interview guide was used to explore heath care providers' perceptions on women's knowledge of cervical cancer and screening, accessibility of screening services, demand creation strategies employed, barriers to screening, and recommendations for increasing the uptake of screening with probes applied to solicit information on male partner involvement. The interview guide which took 30-45 minutes to administer was pretested and refined prior to the study. Both FGDs and IDIs were audio-recorded to guard against information loss. Male partner support was thus explored from the perspectives of both women and health care providers.

Note should be taken that data collection for this second phase of the study occurred during the COVID-19 pandemic. Consequently, all essential measures to minimise the transmission risk between participants and the study team were adhered to according to WHO and national guidelines (19). These included screening of women for participation through temperature checks and excluding current flu like symptoms, proper wearing

of face masks throughout the data collection processes, hand hygiene and physical distancing of at least one meter between individuals.

2.5 Data analysis

Verbatim transcription of the recorded FGDs and IDIs was done. Focus group discussions and CHW transcripts were then translated into English by the first author who is fluent in both Ndebele and English. The transcripts were read and cleaned to eliminate inconsistencies, then coded with the aid of Web ATLAS.ti software using thematic analysis (20). The second author, who is an expert in qualitative research, reviewed the coding and themes. Results are presented as direct quotes from the FGDs and IDIs based on the themes that emerged.

3.0 Results

3.1 Socio-demographic characteristics of participants

A total of 36 women participated in the FGDs out of 50 that had been recruited. Table 1 presents a summary of the participants' socio-demographic characteristics. The age groups and screening statuses were evenly distributed across the sample. The larger proportion of participants had between one and four children (31: 86.11%), were married (30: 83.33%) and had attained a secondary level of education (21: 58.33%).

Table 25: Socio-demographic characteristics of focus group discussion participants

Characteristics	Frequency	Percentage (%)
Age		
25-34	13	36.11
35-44	12	33.33
45-50	11	30.56
Parity		
1-4	31	86.11
5+	5	13.89
Marital status		
Single	2	5.56
Married	30	83.33
Widowed	3	8.33
Divorced	1	2.78
Educational attainment		
Primary and below	13	36.11
Secondary	21	58.33
Tertiary	2	5.56
Screening status		
Screened	19	52.78
Not screened	17	47.22

Twenty-five IDIs were conducted with health providers from community level, primary health care level and the Provincial Hospital. A breakdown of the participants' professional characteristics is given in Table 2 by cadre and level of function in the health system.

Table 26: In-depth interview participants by work position and area of operation

Position	Area of operation	No. of participants
Doctors	Gwanda Provincial Hospital	2
Nurse Administrator (Matron)	Gwanda Provincial Hospital	1
Community Health Nurse	Gwanda District	1
VIAC trained nurses	Rotating between Gwanda Provincial Hospital and Phakama urban clinic	3
Non-VIAC trained nurses	Gwanda Provincial Hospital	6
Non-VIAC trained nurses	Primary Health Facilities	5
Community Health Workers	Community level	7
Total		**25**

3.2 Emerging themes

From the results, it emerged that male partners make a salient contribution towards increasing the incidence of cervical cancer. Men also present barriers to women utilising cervical cancer screening services. Major themes that emerged from the FGDs and IDIs were 1) men's risky sexual behaviours 2) indifference towards screening, 3) lack of emotional, social and financial support and 4) lack of support for post screening treatment adherence, all of which are centered on lack of knowledge.

3.2.1 Risky sexual behaviours

Women generally viewed men as exhibiting high risk sexual behaviours that perpetuate the incidence of cervical cancer. Men reportedly have multiple sexual partners, a risk factor for development of the disease.

"The problem is in men. To them it's normal to have extra marital affairs which means they can infect all their sexual partners if they pick the disease from one of them. That's why so many women end up with cervical cancer". (FGD 2, Participant 3, 45 years, 4 children, married, secondary education, screened)

"Sleeping with many people leads to cervical cancer. Like some men have up to seven. So, they can pass the cancer cells from one woman to the next". (FGD 5, Participant 7, 50 years, 6 children, single, secondary education, not screened)

"I will not be knowing that my husband will leave home and go to have sex with my neighbour. From my neighbour he will move to another woman. At the end of the day, he will have slept with many of us exchanging us". (FGD 3, Participant 4, 42 years, 3 children, married, secondary education, screened)

The patriarchal nature of decision making in sexual matters was seen as potentiating the problem:

Women have no power to protect themselves during sex. It's men who have the power to say how they want it done and they don't want to use condoms in marriage so they can bring it [cervical cancer] from their other sexual partners. (FGD 5, Participant 5, 25 years, 2 children, married, primary school, not screened)

3.2.2 Men's indifference towards screening

Although men may not prohibit their partners from attending cervical cancer screening services, their perception is that SRH issues are the concern of women and have nothing to do with them. This was reflected in the responses that women gave when asked on the role male partners played in reducing the incidence of cervical cancer.

"Most men are not bothered one way or another, but I don't think they refuse for their wives to be screened". (CHW, rural community 3)

"Men usually do not have problems with women attending health services. They don't bother themselves with these things quite a lot. It's only a few who will forbid their women to be screened". (FGD 1, Participant 5, 50 years, 3 children, widowed, secondary education, screened)

3.2.3 Lack of emotional, social and financial support

Women and health providers indicated that despite women's awareness of the need for cervical cancer screening, some would still opt out due to fear of the consequences that might follow from their male partners. This was more so if the test result was positive. Participants reiterated the need for heightened education of male partners to promote normalisation of cervical cancer screening.

"Other women are afraid to test because they don't know how the husband will react to a positive result. They fear that the husband will leave her. They [men] may take a second wife if the first gets cervical cancer. So, I suggest that men should also be involved in these lessons so that they also understand and encourage their wives. Find ways of involving men in these lessons when you teach women about this disease and the importance of screening". (FGD 3, Participant 2, 29 years, 3 children, married, secondary education, screened)

*"And it's also difficult to tell my husband because he will say where did you get it from, and then I start problems for myself" (*FGD 1, Participant 1, 31 years 3 children, married, secondary education, not screened)

"I agree that men are a problem. They are very difficult to convince……... If you talk about cervical cancer screening, he will ask you why you want to go looking for diseases and won't allow you to go for screening. They refuse and tell you that you can go if you want but if you are found to have the disease; it will be yours because you will have looked for it. Men can be very difficult. I also support the idea of male involvement because this can make everyone have an appreciation of the programme. This way, the number of women coming up for screening would increase". (FGD 4, Participant 7, 43 years, 3 children, married, primary education, not screened)

Health providers concurred with women on men's lack of support and the need for their involvement for improving acceptance of the programme.

"There are many [women] who will say their husbands don't allow them to be screened (Primary Care Nurse, RHC 2)

"*The issue of male support is a challenge……. we should not take for granted that women will come without the knowledge of their husbands because they may refuse to allow their wives to attend screening if they have not been informed. So, there is a need to also target men with information in their circles for better acceptance of the screening programme. If you target one side, you lose".* (Community Health Nurse, Gwanda district)

"Most of the patients that I have seen, they come to the hospital alone……….. They actually don't have enough support, because even when they come, I have never seen anyone come with their partner. They have to go through with this all alone". (State Registered Nurse, Paediatric Ward)

Lack of financial control on the part of women was seen to pose additional barriers to screening because men are unwilling to provide funding for women to access services, they have reservations on.

"You see; if you go for screening, since you are already HIV positive, then you are told you also have cancer, it may create friction because your husband will say you brought the disease and it's your problem. He won't even give you the money to go to Gwanda". (FGD 4, Participant 3, 26 years, 2 children, married, primary education, not screened)

"Involving men when teaching us will solve the problem because they are the ones who give us money. So, if they are involved, they will freely give us the money to go to Gwanda for screening". (FGD 5, Participant 3, 31 years, 3 children, married, primary education, screened)

Men's attitudes towards the way the procedure is done compel them not to allow their partners to go for screening. This also hinges on the cultural norms that view it as a taboo for a woman's private parts to be accessed by anyone or anything other than her husband except when giving birth.

"Some men don't like it to be done on their women. They don't like it. You know the thing which they use for cervical cancer screening. Some men they don't like it. The woman will tell you that my husband doesn't want. They are even jealous of the tools that are being used there". (State Registered Nurse, OIC)

3.2.4 Lack of male partner support for treatment adherence post screening

Findings of the study suggest that men are unlikely to abstain from sexual relations during their partners' treatment period and will satisfy their sexual needs elsewhere. In order to avoid their partners from seeking sex outside their relationships, women would rather not screen.

"The other challenge is that if women are VIAC positive and are treated with cryotherapy, we encourage them to stay for six weeks without sex so our men do not want to stay that long without sex and they are the ones

199

who make decisions related to sex, so women will not come for that reason to avoid problems at home". (VIAC Nurse 1)

"Other ladies are afraid to come for screening because they are afraid of their husbands. Let's say the woman comes and screens and is found positive, then we need to involve the husband in the treatment whereby after treatment she is supposed to abstain from sex for six weeks. So that's where the challenge is. So, the lady will prefer not to screen because she will say 'no' I will have challenges in my home as he will get it from somewhere". (VIAC Nurse 3)

3.2.5 Men's lack of awareness and knowledge on cervical cancer

Although men's knowledge on cervical cancer and screening was not directly solicited, responses provided by participants reflect overall lack of knowledge on the risk factors for the disease and the benefits of screening. The following statements from women infer that men's actions or inactions in relation to spousal/partner support are based on inaccurate information.

"………… men should also be involved so that they understand that having cervical cancer is not the fault of the woman. That way they would be more supportive to their partners". (FGD 4, Participant 6, 37 years, 3 children, married, secondary education, not screened)

"They [men] think that if you go for screening, your womb will be removed. They do not understand why screening is done". (FGD 5, Participant 11, 43 years, 6 children, widowed, primary education, not screened)

"I support the idea of involving men. If he understands what causes cervical cancer and what puts a woman in danger of getting the disease, he will understand better because our men do not know yet they are the ones with many sexual partners who bring home these diseases. If they understand why women should be screened, they will support us". (FGD 5, Participant 2, 40 years, 10 children, married, primary education, not screened)

*"Men should also be involved in the education of women about cervical cancer screening. Maybe if they understand why it is done, they will encourage their partners to be screened. It is not very helpful to teach women alone. We should be taught together with our partners". (*FGD 5, Participant 11, 43 years, 6 children, widowed, primary education, not screened)

Health providers also attested to men's lack of knowledge on how HPV is transmitted.

"………. a man will pass this HPV virus to the woman without any knowledge of how it was passed during sexual intercourse so they should know the mode of transmission of the virus that is involved in the causation of cervical cancer" (Community Health Nurse, Gwanda district)

3.2.6 Proposed facilitators to increase male involvement

Most women and health care providers were optimistic that with appropriate interventions, men could significantly contribute to women's increased uptake of cervical cancer screening. Suggestions were presented

on how male partners can be involved in addressing barriers to the access of screening, key of which was education. Although the general feeling was that men would not of their own free will seek information on cervical cancer screening, participants offered ideas on how male education could be effectively implemented.

"The issue of education comes in whereby………the partners need to be educated too. And since we all know that it's difficult for men to come to a clinic setup, maybe eehh…. the people responsible for the screening programme can go out there to communities and invite people including their partners then they can be educated. I think that way we can actually sensitise a lot of people and that way we can also talk to a lot of partners rather than asking them to come to the hospital so that we educate them. I think we have to go to the community". (State Registered Nurse, Paediatric Ward)

"……. male nurses should discuss with men wherever they meet about this issue of cervical cancer……… so that …… men might take it into consideration. Then it will be easier for them to support their spouses. That way we can improve acceptance". (Midwife, RHC 1)

"The other problem is men. Especially the young husbands. I wish there could be lessons which combine both men and women so that after men have also been educated, when they are now home sitting down with his wife, he will ask her if she has gone for screening. They will remind each other". (Health Promoter, urban community 1)

Some women were however adamant that men would not be interested to attend the educational sessions.

"Even if community meetings are called [to educate men on cervical cancer], they will not attend. They will push women to the meetings like they normally do". (FGD 4, Participant 5, 38 years, 1 child, married, secondary education, screened)

To address this problem, participants suggested implementing male-centered educational programmes that would integrate information on cervical cancer. This would enable men to have an appreciation of the drivers of HPV transmission and re-infection, and the importance of screening and early treatment to prevent precursor lesions progressing to cervical cancer. Being well informed could enhance men's support for women's decisions to take-up screening.

"My suggestion is that there should be a programme which focuses on male cancers where men will also get the education more appropriate to them. This will arouse their interest since the programme will be directly affecting them. As they get these lessons, they will stop blaming women for bringing such diseases home and women will get more support for screening". (FGD 4, Participant 5, 38 years, 1 child, married, secondary education, screened)

Evidence to active male participation through programmes that benefit them is seen from the well accepted VMMC programme that is offered at the provincial hospital and at primary health facilities through mobile clinics.

201

"………… [VMMC has a high uptake, but] we didn't do like what those who were doing circumcision did. We didn't do those mass pre-campaigns [for cervical cancer screening]." (VIAC Nurse 3)

While the focus of the study was on male involvement, it also emerged that community leaders have an influence on how communities accept health programmes and hence, are an effective vehicle in getting information through to their communities.

"I would also like to suggest that if men are to be called to join women when we are being taught about cervical cancer, this be done through community leaders. Without doing that, men will never come. They are stubborn and don't like to attend any meetings unless if it has to do with them directly". (FGD 5, Participant 4, 34 years, 3 children, married, secondary education and screened)

"The other issue is to intensify community mobilisation and involve men. We should not take these things for granted even without organising meetings. Find them where they are. Always involve community leaders. When information comes through their leaders, people will understand it better". (Community Health Nurse, Gwanda district)

An example was however highlighted on the facilitation role that male partners play in support of the screening programme. This could be an indication that with more knowledge, men can provide social and financial support for their partners to access screening services.

"There are a few [men] though who when you put a message on the village WhatsApp group, they will even comment, meaning that if men were to be fully involved in this programme, we could see more women coming up for screening". (CHW, rural community 3)

4.0 Discussion

To the authors' knowledge, this is the first exploratory analysis of male involvement in cervical cancer screening programmes in Zimbabwe. In-depth interviews and FGDs were used to assess the perspectives of health service providers and women that participated in a two phased study on barriers to cervical cancer screening in the Gwanda district of Zimbabwe. The study identified men's risky sexual behaviours, indifference towards cervical cancer screening, lack of male partner's support for screening and treatment, and inadequate awareness and knowledge on cervical cancer as key areas that negatively impact cervical cancer screening. Participants identified means through which male partners serve as barriers to cervical cancer prevention and recommended potential strategies for male involvement in order achieve a positive impact for the programme.

Castellsague` and colleagues (11) identified that men who have had many sexual partners place their current partner at risk of cervical cancer as they may be vectors of high risk HPV types. From this study, it was observed that men have multiple sexual partners, a practice that increases the transmission of HPV. Consistent with this, the Zimbabwe Demographic and Health Survey (21) also revealed that in 2015, more men than women reported having two or more sexual partners, with the mean number of partners slightly increasing as

education and wealth increased. Only 37% of men reported condom usage at their last sex encounter (21). It would seem as if men were oblivious of the risk they add to increasing the incidence of cervical cancer among their partners. This is a cause for concern with implications for policy and practice. There is need to implement changes in SRH policies that would foster a collaborative approach to maintenance of family health that involves men.

This study also identified that women and health care providers perceived men's knowledge pertaining to cervical cancer and screening to be low, with some men holding incorrect beliefs about screening. Considering that cervical cancer educational programmes have primarily targeted women with little attention paid to men (10), this finding is not unexpected. It would be unrealistic to expect men to know better since clearly, women also lack full understanding of the disease and its preventive screening measures as revealed in previous studies from Zimbabwe (22) and Gwanda district in particular (23). This is further confirmed by the fact that women in this study were aware of the risk for developing cervical cancer posed by having a high-risk sexual partner yet failed to demonstrate knowledge of HPV as the primary risk factor for the disease.

Findings are consistent with previous studies conducted in Kenya (9), Ghana (8), South Africa (10) and among Latino immigrant (24) and Sub-Saharan African immigrant (25) men in the United States that similarly found that men had inadequate or inaccurate knowledge on cervical cancer. However, men have expressed willingness to learn more to enhance support of their partners' health seeking behaviours for screening (6,8,26) as was also inferred in this study.

Almost all women and health providers recommended education of men on all aspects of cervical cancer with the hope that an increase of knowledge among male partners could enable improved understanding of risk factors and screening and treatment processes. Similar suggestions were given in a Kenyan study by Adewumi et al (2). Findings of the current study that are consistent with a South African study by Maree et al (10) provide evidence for the need to apply innovativeness in the delivery of education on cervical cancer to males since it is unlikely that men will present themselves to health facilities to receive the education.

Another important finding that emerged from this study was the lack of, or inadequate emotional, social and financial support from male partners that limited women's access to cervical cancer screening and treatment. Furthermore, men detached themselves from the whole process even when they did not prohibit their partners from accessing screening services. These findings differ from those of Adewumi et al (2) and Binka et al (6) conducted in Kenya and Ghana respectively. The mentioned studies found that men provided support to their partners in form of funds for transportation and accompanying them to screening facilities, encouragement for screening and adhering to sexual abstinence during treatment. Reasons for this discrepancy could be the lack of appreciation for cervical cancer prevention by Zimbabwean men. This could be due to low awareness and knowledge on the subject taking into account that the screening programme is currently not available at RHCs.

Knowledge gaps have the potential of influencing men to unwittingly withhold the support necessary for women to seek screening and treatment services. This underscores the need for developing strategies that

effectively involve male partners in cervical cancer prevention and screening promotion programmes if they are to be readily acceptable within families and communities. The VMMC programme that attracts high volumes of men could be used as a platform to disseminate information on cervical cancer. These two programmes complement each other very well given that VMMC has a protective effect against cervical cancer (13).

The cruciality of involving community leaders to spearhead male involvement in cervical cancer prevention and control programmes as implied by both women and health providers is encouraging. It is best practice to recognise the community mobilisation role that civil society plays in the identification of challenges and development of strategies to overcome them as advocated by WHO (27). This has the effect of facilitating successful uptake of the programme by all stakeholders at community level.

Findings of this study should be interpreted with consideration that data were collected during the second wave of the COVID-19 pandemic. Although maximum variation sampling had been applied in recruiting participants for FGDs, there was an imbalance in the sample in terms of marital status, parity and educational attainment. Some women who had agreed to participate did not turn up for the discussion, probably due to fear of exposing themselves to the risk of contracting the disease. The same problem affected the sizes of the groups that had been planned at ten participants but had an average of seven participants with the least having five. This could have biased the results in favour of married women who were over represented in all groups. We also acknowledge that the data is analysed from the perspective of health providers and female partners on the behaviour, beliefs and attitudes of their partners and that no data were collected directly from the male partners.

5.0 Conclusions

Findings of this study demonstrate that men have limited knowledge on cervical cancer. Consequently, they practice risky sexual behaviours that increase the chances of their female sexual partners developing the disease. Our results also indicate that male partners serve as a barrier to cervical cancer screening seeking behaviours and treatment adherence through lack of partner encouragement and failure to provide financial, social and emotional support. These findings highlight the overarching need for male involvement in cervical cancer screening programmes. Education of men on cervical cancer prevention and control should be intensified and sustained using innovative strategies that will arouse their interest. Increased knowledge could eliminate some barriers linked to male partners with the ultimate goal of increasing uptake of cervical cancer screening and reducing the burden of the disease. Needless to say, education of women should also be intensified as they also evidently still need better understanding of cervical cancer and screening. Future male-focused studies should look at the knowledge and beliefs related to cervical cancer screening among men in Zimbabwe.

6.0 Declarations

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Author contributions

Conceptualisation of the study: FM, YT, VS; Data collection: FM; Data analysis: FM, YT, VS; Original draft of the Manuscript: FM; Manuscript Review and editing YT, VS.

Data Availability Statement

The privacy of study participants may be compromised if data are made publicly available and are therefore available upon request. Due to these conditions, researchers who meet the criteria can access the data by sending an e-mail request to the data holders Dr Yoesrie Toefy through ytoefy@sun.ac.za at the Stellenbosch University, Division of Health Systems and Public Health in South Africa, or Fennie Mantula through fennie.mantula@nust.ac.zw at the National University of Science and Technology in Zimbabwe.

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Competing interests

The authors declare no competing interests

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Chapter 9: Strengthening cervical cancer screening programmes in Gwanda district, Zimbabwe: A qualitative study

This chapter addresses the fifth objective of the study and has been written as a manuscript ready to be submitted to the journal *BMC Public Health*.

Abstract

Background: Numerous studies have been conducted on barriers to cervical cancer screening in low resourced settings. Few have however explored the factors that motivate women to make the decision for screening. This study aimed at identifying strategies for strengthening screening for cervical cancer in Gwanda district. These were determined through assessing the strengths and facilitators to the uptake of screening, with the goal of informing the development of context for use in strengthening cervical cancer programmes in Gwanda district, and Zimbabwe in general.

Methods: A qualitative study using five focus group discussions with 36 screening-eligible women aged 25–50 years, and 25 in-depth interviews of health providers with varied responsibilities in the screening programme were conducted. Data were analysed using the thematic analysis method.

Results: Our key findings suggest that women's willingness to be screened, on-going awareness campaigns and an increasing number of screening sites and nurses trained in screening procedures support the uptake of screening. At the same time, awareness and knowledge about cervical cancer screening, male partner support and community involvement are seen as facilitators to screening, with accessibility of cervical cancer screening services being recognised as the most important.

Conclusions: Although most women are willing to be screened, health facilities that offer screening services are limited. What is more, women still lack full understanding on the benefits of screening, and support from their male partners is minimal. These findings underscore the need to develop strategies that effectively address the prevalent barriers so as to enhance the facilitators for strengthening of screening programmes.

Keywords: cervical cancer, cervical cancer screening, facilitators, Zimbabwe

1.0 Background

Although cervical cancer has been relatively well controlled in many developed countries due to effective screening initiatives and treatment, it still remains the commonest cause of cancer related deaths among women in most low and middle income countries (LMICs) (1). The mortality rate from cervical cancer in LMICs was estimated at 13.2 per 100 000 women in 2020 (2). In Zimbabwe, cervical cancer accounted for 19% of the total cancer burden and 33% of the cancer burden among women, and 12% of total deaths from all malignancies in 2015 (3). Yet, the disease can be effectively prevented and controlled through programmes that combine primary and secondary activities namely; sustained high coverage Human Papillomavirus (HPV) vaccination and sustained high coverage screening, coupled with treatment respectively (4). Given these cost-effective preventive tools that are available, even one cervical cancer death is too many (5).

The impact of primary prevention can however only be realised after many years of population based vaccination since the vaccine is targeted primarily at adolescent girls aged nine to thirteen years (2). Secondary prevention that involves screening and treatment of precursor lesions therefore remains the best strategy for the majority of women. This is because vaccination does not eliminate the causal impact of HPV (the major risk factor for cervical cancer) against older women who are already infected with oncogenic strains of the virus (6). Studies suggest a 25–36% cervical cancer risk reduction in women who have been screened at least once between the ages of 30–40 years (7).

Sustainable Development Goal (SDG) 3.7 calls for universal access to sexual and reproductive health services by 2030 (8). Implementation of cervical cancer prevention and control programmes contributes to the attainment of this goal (9). Nevertheless, LMICs are burdened with numerous challenges that prevent the effective and sustainable implementation of cervical cancer prevention and control initiatives (10). Challenges related to secondary prevention of cervical cancer include poor access to cervical cancer screening programmes or poorly implemented services (2), lack of resources for the programmes, and socio-cultural norms that restrict women from accessing the services (10).

Like most LMICs, Zimbabwe has not been spared from these challenges. Although there has been no prevention and control strategy specific to cervical cancer prior to 2016, the country embarked on a national screening programme in 2010 using the Visual Inspection with Acetic Acid and Cervicography (VIAC) method (11). The Zimbabwe Cervical Cancer Prevention and Control Strategy (ZCCPCS) of 2016-2020 was developed to effectively address the four basic pillars of cervical cancer management namely: prevention, early detection through increased awareness and organised cervical cancer screening programmes, diagnosis and treatment, and palliative care for advanced disease (11).

Secondary prevention through VIAC forms the foundation of cervical cancer prevention and treatment in Zimbabwe (11). The Zimbabwe Demographic and Health Survey (ZDHS) reported a screening uptake of just 13% in 2015 (12). Strides have however gradually been made at increasing access to screening services since 2016 when the ZCCPCS was operationalised. Limitations in resources, trained personnel, infrastructure,

screening sites and treatment delays and poor knowledge of cervical cancer have been linked to the poor utilisation of screening services (13–15). As the global community moves towards elimination of cervical cancer as a public health problem by 2030 (16), it is imperative that health facilities at all levels of health care take incremental steps that contribute to attaining this goal.

There have been lots of studies that researched on barriers to cervical cancer screening in different settings (17–19). However, few studies have addressed the factors that facilitate screening. The authors are aware of only one study from Zimbabwe that focused on facilitators to screening among women attending integrated Human Immunodeficiency Virus (HIV)/Sexual and Reproductive Health clinics (20). Findings of that particular study could be a reflection of facilitators to screening related to just a sub-group of the target population. The aim of this study therefore was to bridge the gap and examine the existing strengths and facilitators that could be incorporated into the cervical cancer programme on a broader basis. Strategies to improve uptake of screening services in Zimbabwe should start by identifying enablers to screening in order to build on them. Findings of this study could extend existing evidence and assist in developing context for use in policy through counteracting the barriers to screening for improved uptake of the programme.

2.0 Methods

2.1 Study setting

The research was conducted in Gwanda district located in the Matabeleland South Province of Zimbabwe. This district has 34 electoral wards categorised into urban and rural wards that include mines. Of the 34 wards, 10 are urban and 24 rural. As at 2015, Gwanda district had a low screening rate of 19% (15). VIAC services in the district have since 2013 been offered at Gwanda Provincial Hospital, a tertiary health facility. This institution is located in Gwanda town and serves as a referral center to six district hospitals in the province and 29 lower-level health facilities in the district. An additional screening site was opened in a Municipality run clinic in 2020, also located within the town of Gwanda.

The Organisation for Public Health Interventions and Development (OPHID), an implementing partner, provides VIAC services to rural communities through outreach services. These services have however been inconsistent due to financial constraints and the COVID-19 pandemic in 2020 that called for decongestion of gatherings to minimise the risk of transmission. In addition, the focus of OPHID is on providing screening services to known HIV positive women in accordance with their mandate (21). Given the variations in the way screening services are delivered across the residential locations, there is need to understand the facilitators to screening from the different population groups in order to improve the overall cervical cancer prevention and control programme in the district.

2.2 Study design

This qualitative cross-sectional survey conducted on women and health care providers in January 2021 reports on a section of a larger sequential mixed method study that looked at 'barriers to cervical cancer screening' in

Gwanda district. The qualitative phase was preceded by a quantitative survey that was carried out among women in June – July 2019. The qualitative approach used for this study was preferred as it is flexible and enabled the researcher to probe deeper into issues that needed a more thorough and comprehensive understanding (22) of barriers to cervical screening that could be addressed and transformed into facilitators. The exploratory approach allowed the researcher to gain more insight and obtain a clearer depiction of the factors that facilitated screening.

2.3 Target population

The study population was women aged 25–50 years, chosen to participate in focus group discussions (FGDs) because of their eligibility for screening and the higher risk they have for developing cervical cancer. Health providers with different responsibilities in the screening programme and practising at community level, primary health care facilities and the provincial hospital that provides screening services were also engaged for in-depth interviews (IDIs).

2.4 Sampling procedures

Multistage random sampling was used in the selection of 10 study sites out of the 34 wards in the district. From the 10 selected wards, one village was randomly selected from each ward bringing the number of study villages to ten. Community Health Workers (CHWS) referred to as Health Promoters in the urban set up assisted with the identification and recruitment of women that were purposively selected to participate in the initial quantitative survey findings of which are reported elsewhere. For this study, five villages were randomly selected from the ten study villages based on their location: one mine and two villages / suburbs each from the rural and urban settings, respectively. One FGD was then conducted in each of the selected villages bringing the total number of FGDs to five (Table 1).

Table 27: Focus group discussion participants by residential area and age group

FGD Number	Number of participants	Residential location	Age range
1	6	Urban	29-50
2	5	Urban	25-45
3	7	Mine	27-50
4	7	Rural	26-48
5	11	Rural	25-50

Participants for FGDs were drawn from the quantitative survey and selected using maximum variation sampling (23). This selection considered the women's socio-demographic profiles and the diverse manner in which they had responded to the quantitative survey questions. A wide variation was allowed to capture a broad range of insights of both similarity and differences emerging out of the heterogeneity.

Participants for in-depth interviews were purposively selected under the guidance of the provincial hospital and district health executive teams. The sample included CHWs and nurses from the primary health facilities

in the selected villages, and one nurse from each of the provincial hospital's departments that interact with women in health service delivery. Nurses and doctors working in the VIAC clinic, a Nurse Administrator and District Community Health Nurse were also interviewed as key informants (Table 2).

Table 28: In-depth interviews participants by work position and level of function

Cadre	Work Station	Number of participants
Doctors	Gwanda Provincial Hospital	2
VIAC nurses	VIAC clinics	3
Community Health Nurse	Gwanda District	1
Nurse Administrator	Gwanda Provincial Hospital	1
Nurses	Gwanda Provincial Hospital one from each of the following departments: Family Health Services Unit Outpatients Department Opportunistic Infections Clinic (OIC) Female Ward Paediatric Ward Maternity Ward	6
Nurse	Urban clinic	1
Nurse	Mine clinic	1
Nurses	Rural Health Centers (RHCs)	3
Health Promoters	Urban setting	2
VCWs	Rural setting	3
VCWs	Mine setting	2

Focus group discussions took an average of one hour to administer and were conducted at selected community venues using Ndebele, the local language. In-depth interviews for the professional health providers were held in offices and duty rooms of the various health facilities using English. Community based health workers were met at community venues and interviewed in Ndebele. The interviews were conducted during normal working hours as guided by the health institutions' administrators and lasted an average of 30 minutes.

Thematic data saturation, the point at which observing more data and further analysis could not reveal new themes (24) was achieved from the five FGDs and 25 IDIs.

2.5 Data collection tools

Data were collected using FGDs and IDIs that were captured with a digital recorder. The guides were developed from review of related literature and the theoretical framework that guided the conceptualisation of the study. A socio-ecological model adopted from Kaufman et al (25) that views specific health behaviour as

determined at four levels of influence that is; the individual, interpersonal, community, health system and structural levels was used.

These five levels are interrelated, with a change at one level influencing change at another level (26). Personal factors concern the knowledge, attitudes, behaviours, and perceived risk and background characteristics of the individual woman that would motivate them to go for screening. Interpersonal factors relate to influences determined by the environment most proximal to the woman that include spouses/male partners, family members and close social networks. Community influences are largely determined by socio-cultural and religious factors that influence screening behaviours, health system factors emanate from policies and processes and procedures related to screening services while structural barriers are macro-contextual factors that include public policy and laws, poverty, and the prevailing political climate.

Topics covered in the FGD sessions for the main study were knowledge and attitudes towards cervical cancer screening and barriers to cervical cancer screening. The question that addressed the research question for this particular study asked participants to provide recommendations for increased uptake of screening and used probes to solicit for facilitators to screening. Similarly, just one question on measures that could increase the uptake of screening with probes was used from the IDI guide for this present study. Other questions for the main study asked on knowledge, perceptions and practices of the community on cervical cancer and screening, and barriers to screening.

2.6 Data management and analysis

Recordings from the FGDs and IDIs were fully transcribed verbatim and translated into English if in Ndebele. The transcripts were read and coded using Web ATLAS.ti and emerging themes identified by the first author based on the theoretical framework. The second author, an expert in qualitative research validated the codes and the generated themes. Data were analysed using thematic analysis. Results of the study are presented thematically with direct quotes from FGD and IDI participants to focus and support the major findings.

3.0 Results

Thirty-six women and 25 health care providers that served in various capacities in the cervical cancer screening programme participated in the study. Their background characteristics are presented in Tables 1 and 2. Four major themes determined a priori from the theoretical framework were individual, interpersonal, community and health system factors. Interrogating the data from the FGDs and IDIs deduced seven sub-themes related to existing strengths and 13 related to facilitating factors. These are presented in Table 3. Participants highlighted the factors they perceived as barriers to screening and proceeded to suggest strategies that could be implemented to minimise the identified barriers and facilitate improved screening behaviours.

Table 29: Themes outlining strengths and facilitators to cervical cancer screening

Categories	Themes	Sub-themes
Strengths	Individual influences	o Women's willingness to be screened
	Community influences	o Cervical cancer known as a disease that kills
		o High church attendance by women
	Health system influences	o On-going awareness campaigns
		o Availability of male CHWs
		o Availability of screening services
		o Improvement in the availability of human resources for the programme
Facilitating factors	Individual influences	o Awareness and knowledge about cervical cancer screening
		o Personal experience with cervical cancer
		o Ill health
	Interpersonal influences	o Male partner support
	Community influences	o Community involvement in the planning and implementation of the VIAC programme
	Health system influences	o Adequate funding for VIAC programmes
		o Well informed service providers
		o Accessibility of cervical cancer screening services
		o Expanded community outreach services for cervical cancer screening
		o Access to free treatment
		o User-friendly screening methods
		o Professional service providers
		o Acknowledgement of traditional and religious ways of dealing with cervical cancer related issues

3.1 Existing strengths in favour of the VIAC programme

Participants highlighted the already existing strengths that the programme could use to its advantage at increasing the uptake of screening. These included; women's willingness to be screened, knowledge of cervical cancer as a killer disease, high level of religiosity among women which provides ready access to the target population in churches, awareness campaigns on cervical cancer screening that are on-going, and an improvement in the availability of screening services and personnel trained in VIAC procedures. However, the voluntary medical male circumcision (VMMC) programme that is successfully running in the district was not stated as a tool that could incorporate VIAC messaging to complement educational interventions on cervical cancer screening.

3.1.1 Theme 1: Individual Influences

It emerged that on the overall, women in Gwanda district are willing to be screened for the reason of wishing to know their status although the major deterrent especially for those residing in rural areas is the unavailability

of the service. On the contrary, urban-based women are less eager to utilise the service due to attitudinal issues of both service providers and recipients, and misinformation.

Women from the rural areas had this to say:

"We also wish to be screened so that we know where we stand. But it seems the priority [by the outreach team] is given to women who are HIV positive". (FGD 4, Participant 7, 43 years, 3 children, married, primary education, not screened)

"Women want to be screened but the main challenge is that they have no money to go to Gwanda to have that screening done" (FGD 5, Participant 1, 26 years, 2 children, secondary education, screened)

"When the outreach team came, I was having my period and I understand screening is not done on menstruating women. But I am ready to be screened anytime I get the opportunity". (FGD 4, Participant 6, 37 years, 3 children, married, secondary education, not screened)

Health care providers confirmed women's willingness to screen with CHWs indicating that:

"……. They (women) wish to be screened. I say so because when the clinic gives us a date of when the mobile clinic is coming, I go round mobilising the HIV positive women. The HIV negative also complain because they want to be screened". (CHW, rural community 2)

"The acceptance of the screening programme is very good, and women are willing to be screened but few women have been screened. The problem is the discrimination on screening where there is a specific group of people who are wanted". (CHW, rural community 3)

This fact was further corroborated by a RHC nurse who indicated that although some religions do not allow members to seek medical attention, women still did so behind their leaders' backs. This is an indication of women's acceptance of health interventions that include screening if it were accessible.

"For some it's the church... Their religion does not allow them to use health services, so they are afraid to visit the clinic during working hours. So, those who sneak out, they do that late and we have to attend to them during late hours. So, for cervical cancer screening now, it's difficult for them to go to the hospital because they will be seen". (Primary Care Nurse, RHC 2)

Other nurses also authenticated women's enthusiasm for screening:

"Ya most of them understand that it's very vital and it's very important for them to be screened for cervical cancer. I have heard women encouraging others to be screened because it is good to detect it earlier than later". (Primary Care Nurse, Mine Clinic)

"...we have actually seen a lot of women accessing these services, some coming from other districts. We see a lot of patients coming from other districts from within our provincial constituency. And we have a lot of women

215

who we meet in the community who will ask you about the availability of services… (Nurse Administrator, Gwanda Provincial Hospital)

Surprisingly, it also emerged that women from urban communities who are better placed to access screening services since screening sites are located in Gwanda town were less keen to be screened. This observation was highlighted by nurses providing screening services and also inferred by women.

"I don't know, but usually the ones in the rural areas have interest because when we go for outreach to the rural areas, most women come wanting to be screened even when they have not been invited because they do not meet the criteria of our Partner. I think outside town, they are more interested more than the ones in town. I'm not sure if they understand it much better or they are afraid, but the ones in town show less interest". (VIAC Nurse 1)

Women from the urban and mining areas highlighted the reasons for their poor screening behaviours as follows:

"Women are not that keen, and not many have been screened. You know, it's a small community we stay in [nurses are our neighbours] and the nature of the questions which are asked as part of the screening procedure are so personal such as: heh, when did you start to be sexually active, heh how many sexually partners have you had and so on. Why not just screen me and I go. So, women don't like to have their sexual history being picked on. Mothers prefer not to go, or if you go, then you don't tell them the correct history and those are usually those who already have problems. For those with no symptoms to stand up and just go to be asked such questions is one of the reasons women don't go for screening." (FGD 1, Participant 4, 50 years, 2 children, widowed, tertiary education, screened)

In addition to the intrusive history taking, more reasons for hesitancy to screen were given:

"The uptake is low and is influenced by the unfriendly environment at the clinic. That's why most women don't go for screening". (FGD 1, Participant 4, 50 years, 2 children, widowed, tertiary education, screened)

Women have fear of the unknown because people out there say a lot of things about screening and its after effects…It's more of the negative things which people tell you about screening, for example I have heard that after you are screened, you get a whitish discharge which never stops, and men don't like a watery woman. (FGD 3, Participant 5, 50 years, 4 children, married, secondary education, not screened)

3.1.2 Theme 2: Community Influences

3.1.2.1 Cervical cancer known as a disease that kills

The knowledge within communities that cervical cancer has a high death rate motivates women to screen as they would not want to suffer the same fate.

"Cervical cancer is the deadly one [cancer] we know. Once you catch it and delay going to hospital it spreads all over, what follows is death, and then you leave your children to suffer". (FGD 1, Participant 5, 50 years 3 children, widowed, secondary education, screened)

"They say cervical cancer kills, so they wish to be screened so that they can get treatment if it is found early". (CHW, rural community 1)

3.1.2.2 High church attendance by women

Participants reported that most women attend church services hence could be reached with cervical cancer screening messages at churches as stated in the quotes below:

"We know that in Zimbabwe 95% of people go to church, so if the Ministry of Health uses the platform of churches, they would have reached 95% of people with information". (FGD 1, Participant 4, 50 years, 2 children, widowed, tertiary education, screened)

".......... there is still need for awareness campaigns especially in churches because almost all women go to church. They should be taught in churches because they are the majority compared to men. Clever women should then be identified from each church who will be trained to deliver the messages every Sunday and encourage women to go for screening." (Health Promoter 2, urban community)

3.1.3: Theme 3: Health System Influences

3.1.3.1 On-going awareness campaigns

Increasing awareness on cervical cancer screening in areas where services are established was seen as a vehicle towards utilisation of the service. Participants reported that health education messages are delivered in a variety of settings by various members of the health fraternity and the media on a continuing basis. The goal is to reach as many people in the community as possible with information on cervical cancer screening.

"What we normally do as the provincial hospital is to liaise with the community district offices who deal directly with rural communities...during [integrated] outreach clinics when the district teams go to Rural Health Clinics for other services within the community, we second nurses from the VIAC clinic so that they go with them and inform the community about the available screening services so that they can come to access them. And within the urban community at times there are sensitisations that are done by the Municipality office with the Health Promoters. They usually move around with a car reporting upcoming programmes including VIAC. And then we also have our OIC clients who are given information on VIAC with the hope that when they go back to their communities, they will also cascade the information down". (Nurse Administrator, Gwanda Provincial Hospital)

"Someone goes into the community using a loudspeaker to sensitise the whole community. They use a vehicle, and it reaches different Wards in Gwanda including the outskirts. Yes, they stop even at bus stops, stores and

other places where people are gathered, and they inform the community of Gwanda [about screening] …. We do it quarterly and whenever there is a need". (Midwife, urban clinic)

"Some are aware because of the media, the televisions, the radios, the newspapers. It's a thing which is being preached everywhere. But some are not aware." (State Registered Nurse, OIC)

Social media was reportedly used in the mine setting. This is a closed community where women have closer access to each other and health workers which makes feedback on health issues easy to manage.

"…….they [church community] have also created a WhatsApp group whose administrators also include medical doctors. They always send messages to create awareness about cervical cancer and screening and ask people to forward the messages to their friends and neighbours. That way the information spreads fast because these days almost everyone has a cell phone, and most people will not ignore messages. This WhatsApp system is a good way which can be used to reach many people". (FGD 3, Participant 5, 50 years, 4 children, married, secondary education, not screened)

3.1.3.2 Availability of male CHWs

Socio-cultural norms reportedly make it difficult for males to discuss sexual and reproductive health issues with female health providers. The recruitment of male CHWs has facilitated open discussion on cervical cancer issues among males led by other men. This strategy could motivate male partners to be in a better position to support women on matters relating to screening.

"………. having male CHWs has helped as they mobilise and teach other men which makes it easier than if they are taught by women CHWs. (District Community Nurse, Gwanda District)

3.1.3.3. Availability of screening services

Availability of services was the greatest strength to screening reported by participants. In its pursuit of increasing cervical cancer screening coverage, the district established another screening site at the urban clinic to cater for women in the environs of that clinic. Yet another screening unit was opened at the OIC although not yet functional due to challenges in human and material resources.

"Currently we have two units that offer cervical cancer screening services... These are Gwanda Provincial Hospital and Phakama Clinic. At Gwanda Provincial Hospital we had opened another unit, so Gwanda Provincial Hospital has two separate units within the same Hospital. We have one unit in OI (Opportunistic Infections) Department, that's the one located in Outpatients though of course we have challenges that we faced after opening the unit. One of the challenges was the camera that we use for VIAC. That camera is one for Gwanda Hospital. In fact, there are two cameras, but the issue is the lens that is to be attached to the camera. So, we realised that ultimately, it's one camera that has to be shared between the two units so its ultimately the same numbers of clients that we are able to screen because its two units, but in brackets one

unit because it can only be one unit functioning per given time. ... then we have the VIAC Clinic in the Antenatal Care Department" (Doctor 2)

"The strength we now have is that we have recently opened another VIAC clinic in Phakama so women can get the service nearer to where they stay. Another screening unit was also opened at the OIC early this year but unfortunately the same people [VIAC nurses] are the ones who have to operate there such that the two hospital units cannot function at the same time". (VIAC Nurse 1)

3.1.3.4 Improvement in the availability of Human Resources for the VIAC programme

While previously nurses were sent to a central hospital for VIAC training, the same is now conducted at Gwanda Provincial Hospital since the recent appointment of a Consultant Gynaecologist and Obstetrician to the institution's establishment. The specialist doctor has facilitated VIAC training of more nurses to address the issue of attrition.

"... we were also being assisted by a non-governmental organisation OPHID. They have a specific nurse that is strictly doing VIAC services. So that then has prompted us to ask ourselves if this nurse at one point moves out, what will we do? This made us consider training our own nurses so that at least we always have VIAC trained nurses available. I think in the last four weeks we trained four other nurses so that if the others are not there, there will always be someone on duty but before then staff was a bit low" (Nurse Administrator, Gwanda Provincial Hospital)

3.2 Facilitating factors

Awareness and a good understanding of cervical cancer screening, personal experience with cervical cancer, high cervical cancer risk perception and male partner and community support were seen as facilitators to screening at the individual, interpersonal and community levels of influence. At the level of the health system, adequate funding of the VIAC programme to ensure availability of all necessary screening resources, availability of knowledgeable and professional service providers, accessibility of cervical cancer screening services and free treatment, screening methods that are culturally acceptable and acknowledgement of traditional methods for dealing with cervical cancer- related health problems were broadly viewed as means that could promote uptake of screening. The participants highlighted barriers that women face in accessing cervical cancer screening services while also suggesting how these could be addressed in order to facilitate positive screening behaviours.

3.2.1: Theme 1: Individual influences

3.2.1.1 Awareness and knowledge on cervical cancer screening

Participants opined that screening uptake was low because most women were not aware of the available screening services or lacked information on the importance of screening. The belief was that more women

could be screened if awareness could be raised, and women provided with adequate information on the benefits of screening. The programme seems to focus more on inviting women for screening with no prior education that would help them understand why they need to be screened.

"Most women who have not been screened rely on what other people who may also not be well informed tell them. But if they were to get more knowledge to clear all their fears, I am sure they could accept to be screened". (FGD 1, Participant 1, 37 years, 3 children, married, secondary education, not screened)

"My recommendation is that educating the women about cervical cancer and screening should come first before women are invited for screening. If women understand these things well, they will willingly come for screening. The problem we have now is that things are done in reverse. Awareness campaigns are centered on calling women for screening before educating them. Start with the education and if women have understood the benefits of screening, they will be willing to be screened". (FGD 4, Participant 2, 30 years, 1 child, married, primary education, not screened)

Health care providers also reiterated that greater awareness of the programme among women could facilitate more to come forward for screening.

"Education is what is really needed. Women will always attend if they are invited to come and be taught nicely on this disease and screening. If they understand it well and have all their questions answered, they will want to be screened". (CHW 1, mining community)

"......there is need for us to increase information dissemination to our clients so that they become knowledgeable and make informed decisions. We need to increase education first so that people understand about screening. And we also need to continuously educate our clients so that they also tackle these barriers that are at stake ... be sensitised and be knowledgeable on these things so that our clients will make informed decisions." (Midwife, Maternity Unit)

"Number one thing is to equip the community with the knowledge on screening benefits so that when we take the service to them, they already understand it". (District Community Health Nurse, Gwanda District)

"There should be education of patients at every entry point so that they have knowledge about screening". (State Registered Nurse, Outpatients Department)

"I think mostly its knowledge deficit…sensitisation should be stronger at rural level. I think many of them would really love to be screened if they knew". (Midwife, Female Ward)

3.2.1.2 Personal experience with cervical cancer

Women reported family history or having known someone that died from cervical cancer as a facilitator to accessing screening as this awareness increased one's own perceived risk to the disease.

"Some of us have seen some women die of this cancer and I wouldn't want the same to happen to me if it can be helped. Yes. This is a serious disease ... I am talking from experience because I have seen a relative die from this cancer of the cervix. They said she went to hospital too late". (FGD 1, Participant 5, 50 years, 3 children, widowed, secondary education, screened)

Health care providers indicated that women tend to be shaken into action when they experience signs and symptoms that prompt them to seek medical services or know someone with the disease.

"They [women] only take it as a priority when it's now at a later stage and they experience symptoms. ... they tend to relax and think that cervical cancer happens to some other women and not all women, and they only take action when they now have symptoms, or they are now in pain". (State Registered Nurse, Paediatric Ward)

"...when they [women] have never seen someone suffering from cervical cancer, they won't understand the need to be screened because they don't think it can also happen to her". (CHW 2, mining community)

"We have had a woman who died from that disease the other year. At that time, they [women] were taking the disease lightly but now they know that cancer kills. Everyone is now afraid of it, and they want to be screened". (CHW, rural community 2)

3.2.1.3 Ill health

It emerged that illness especially gynaecological problems were a trigger to seeking cervical cancer screening services.

"I was screened at the VIAC clinic in Gwanda because I had not been well for a long time. I had gone to prophets many times and treated but never got any healing". (FGD 3, Participant 7, 27 years, 1 child, single, secondary education, screened)

"I was screened because I had a problem with fibroids". (FGD 4, Participant 4, 47 years, 3 children, married, primary education, screened)

A health worker's recommendation for screening was reported as facilitator to screening. Many women who attended screening were referrals rather than self-initiators.

"...half of the clients we screen are not people who would have specifically come for VIAC itself but are people who would have come to Gynae Clinics, then referred to be screened. So, if this patient did not have a problem that warranted them to be seen at Gynae Clinic, they were not going to be screened, you see". (Doctor 2)

3.2.2: Theme 2: Interpersonal Influences

Support from male partners was seen as an essential facilitator to screening. Women who engaged their spouses/partners in effective communication were more likely to receive encouragement and support for screening.

221

"Men understand if you explain it properly. They even provide us with money to go to hospital". (FGD 4, Participant 4, 47 years, 3 children, married, primary education, screened)

Health care providers and women similarly recommended that male involvement be an integral part of the cervical cancer screening programme in order to earn male partners' support for screening.

"I suggest that men should also be involved in these lessons so that they also understand and encourage their wives". (FGD 3, Participant 2, 29 years, 3 children, married, secondary education, screened)

"Male nurses should discuss with men...this issue of cervical cancer. Then it will be easier for them to support their spouses". (Midwife, RHC 1)

"Health education [on cervical cancer screening] should be imparted to every woman, even to partners, .so that the information can spread". (Midwife, Family Health Services Department)

3.2.3: Theme 3: Community Influences

Collaboration with communities in planning and implementing cervical cancer screening programmes was seen as a strong facilitator to screening uptake as mutually indicated by both health care providers and women participants.

"...using community leaders has helped in the positive response to the sensitisation sessions. We do not go straight to the villagers bypassing the influential leaders and community structures. Culturally they are respected and can help move the programmes, starting with the Chief, the Headmen and Councillors". (Community Health Nurse, Gwanda District)

"My recommendation is that this education on cervical cancer and screening should start with the community leaders. Be it church leaders or Councillors and Headmen. When these leaders have received information, they will go out to their people and spread the word in the areas they are leading. People listen better to their community leaders because they respect them". (Health Promoter 1, urban community)

"We also utilise our Health Centre Committee members [to create screening awareness within communities] since they are the ones who are the linkage between the community and the clinic". (Primary Care Nurse, RHC 3)

"I suggest that a committee for cervical cancer screening be formed in each village and trained on the subject so that they will have the responsibility of teaching the community on cervical cancer and screening. The community will agree on how often these learning sessions can be held...People will get full knowledge on cervical cancer and be motivated for screening and the number of women who develop the disease will be reduced". (FGD 4, Participant 4, 47 years, 3 children, married, primary education, screened)

222

3.2.4: Theme 4: Health System Influences

3.2.4.1 Adequate funding for VIAC programmes

Allocated financial, material, human and technical resources were reportedly too limited to meet the objectives of the VIAC programme. Health service providers suggested adequate allocation of funds to meet the demands of the programme. This would ensure availability of requisite resources for the effective provision of screening services.

"……it will also be a challenge if many women come to VIAC because there will be no adequate nurses to screen, no packs, no benches…. So, infrastructure as well [needs to be enhanced to support the programme]" (Midwife, Family Health Services Unit)

"VIAC is easier to establish if more funds could be allocated for the programme. VIAC is less costly to run which I think that should be an area to look into so that people have access to services". (Doctor 2)

3.2.4.2 Well informed service providers

An unexpected finding was that some health care providers lacked comprehensive knowledge on cervical cancer and VIAC screening to confidently disseminate information to communities and potential clients. This was because they had not received any related training and hence possessed just the basic information. Nurses based at the provincial hospital would refer women requiring information on screening to the VIAC clinic. Health providers indicated that training on VIAC would empower them to render effective community education. This could facilitate increased demand for utilisation of screening services.

"I qualified two years ago and no, I have not been trained in VIAC that is why I do not have much information related to VIAC screening". (State Registered Nurse, Paediatric Ward).

"…….. here we don't deal with VIAC patients. If a patient comes, we just …refer them to the VIAC clinic, that's where everything is done… Even the health education is done there… We do not discuss anything [here]; everything is done at the VIAC clinic as I have already said… I think you should go to the VIAC clinic that's where you will get the information…" (State Registered Nurse, Outpatients Department)

"The programme is a new baby that is coming up…So being a new baby that has come, there might be lack of knowledge unto us the service providers as well as unto our clients who should be benefiting from it'. (Midwife, Maternity Unit)

"….and another request is that as CHWs can we get full training on cervical cancer and the screening programme so that we are able to give people full information". (CHW, rural community 2)

3.2.4.3 Accessibility of cervical cancer screening services

Lack of screening services at local health facilities presented a challenge for women to access the service. Women found it prohibitive to travel long distances to the two screening sites located in Gwanda town as this has both financial and time implications. Providing screening at health facilities closer to where women live was found to be the most important facilitator to screening across all categories of participants. This is reflected in the following quotes:

"I recommend that screening services be offered at local health facilities too so that we won't have the problem of finding money and time to go to Gwanda. If it is offered here then women can access the services anytime they decide to be screened". (FGD 3, Participant 4, 42 years, 3 children, married, secondary education, screened)

"I am thinking that the best thing is to train our local nurses so that screening can be done at the clinic at any time not this where the service is selective and comes once after a long time". (CHW, rural community 3)

"If VIAC could be done at every clinic, many women would be screened. At every clinic, women should be able to have the VIAC test done". (Midwife, Female Ward)

"If funds are available, it would actually be better to have VIAC screening at the local clinics so that women are serviced within their local clinics". (Nurse Administrator, Gwanda Provincial Hospital)

"I think what could encourage more women to come is to open VIAC clinics at the RHCs so that women don't have to travel all the way to Gwanda then spend a lot of time in queues before they are screened". (VIAC Nurse 1)

"My belief is that every rural hospital, every rural clinic, every clinic in the urban area, everywhere where there is a clinic, there should be VIAC trained nurses and cervical cancer screening should be offered there. Every place where there is an OI Clinic, VIAC should also be offered". (Doctor 1)

3.2.4.4 Expanded community outreach services for cervical cancer screening

Women and health service providers alike highlighted the infrequency of outreach services and the targeted nature on the category of women screened. Extending the service to all women eligible for screening and availing it more often was an important facilitator for women in rural areas.

Women had this to say:

"…………when the mobile team comes, they pick who they want to screen. They don't just screen everyone who wishes to be screened. If the service could be offered to everyone, I am sure most women here would have been screened by now". (FGD 3, Participant 4, 42 years, 3 children, married, secondary education, screened)

224

"The other important thing which could get more women screened is that the mobile clinic should not only focus on women who are on ART but should offer the service to everyone of all age groups who is willing to be screened. My recommendation is that the mobile clinic should come more often, maybe three or four times a year so that every woman gets the opportunity to screen". (FGD 4, Participant 1, 39 years, 2 children, married, primary education, screened)

Health service providers agreed with the women and suggested:

"…to have the outreach team coming more frequently…more women would be screened… they should let every woman who wants to be screened get screened". (CHW 2, mining community)

"………[that] the Ministry should increase the budget for outreach services so that instead of women coming this side, we can go and get them closer to where they are". (Nurse Administrator, Gwanda Provincial Hospital)

"...more outreach programmes for the rural areas to include HIV negative women so that more women would be screened". (VIAC Nurse 2)

"……… [to] make outreach programmes to be more frequent…. We can make sure that every three months we go to each clinic, we screen after they have sensitised on when the outreach team is coming to the clinic. That's how we can reach women in those hard-to-reach areas". (VIAC Nurse 3)

Although VIAC services are available at two institutions in the urban setting, it was observed that the two screening sites were not adequate to carry the whole district and province.

"………. queues at the clinic could be reduced by having mobile screening clinics [in the urban area too] which go out to busy places in the Ward such as in shopping centers to screen women there. If women get to know about mobile clinics, they will come because they won't wait a long time. Besides, I think women like it when people come to them. Let us not only rely on Phakama and the Hospital alone, they are too few to attend to all women. Let us increase the service by introducing mobile clinics." (Health Promoter 1, urban community)

A doctor however highlighted that:

"The mobile clinics should be there to complement the existing services. Depending on a Partner to come through mobile clinics may not do much to address the current cervical cancer burden". (Doctor 2)

3.2.4.5 Access to free treatment

Treatment costs associated with screening were reported as a barrier to screening. Providing free treatment for any anomalies detected during screening could serve as a facilitator.

"Sometimes women are afraid such that even if they see those signs, they won't do anything about it. Their reasoning is that even if they can be referred to Gwanda for treatment, it costs, and they have no money. So, some women find it better to remain with their symptoms and do nothing about it. So, the big challenge we have is that for treatment you have to pay. All that is free is the screening". (FGD 3, Participant 5, 50 years, 4 children, married, secondary education, not screened)

"The problem is that even if you get screened, if they find anything wrong, instead of getting treatment there you are told to go to Gwanda. Most fail to go because they have no money for transport and treatment. This makes women not to bother about screening. If it means dying, it's better to die because it's the same thing even if you are screened, you don't get treated". (FGD 4, Participant 7, 43 years, 3 children, married, primary education, not screened)

"I have also heard that if they find anything wrong when they screen you, they will ask you to pay for the treatment and sometimes they will say you need to be operated. That calls for large sums of money. Most of the time women do not have that money". (FGD 5, Participant 10, 38 years, 2 children, married, primary education, screened)

To address this challenge, health care providers suggested that all management related to screening be provided for free so that more women get the motivation for screening.

"... of course, VIAC is free, but some of the treatment is paid for. So, if they could make everything related to VIAC free including the treatment then more women would be willing to be screened because what is the point of screening when you cannot afford to be treated if you require to be treated?". (VIAC Nurse 1)

"When women are screened, those identified as positive should get treatment for free from where they are screened. There is no use to create awareness on the VIAC programme if the service cannot be fully provided". (Community Health Nurse, Gwanda district)

"..... the doctors should also come with the mobile team to treat those women who are found with a problem during screening. As it is, I have seen five women who were screened about six months ago and were told to come to Gwanda for treatment. They still have not gone because they have no money, and the disease is progressing. So, when they tell other women who have not been screened, those ones will be discouraged because it means it's useless to be screened". (CHW, RHC 1)

3.2.4.6 User-friendly screening methods

The discomfort of exposing one's private parts to health workers kept some women away from screening. An alternative procedure for screening that does not invade into women's privacy could motivate more to demand screening.

"……. most [women] are not comfortable with the way the screening is done. It is not an easy thing to just open up your private parts for someone when you are not ill. Somehow it's just wrong". (FGD 5, Participant 10, 38 years, 2 children, married, primary education, screened)

"Let's have a screening test which does not involve poking women's private parts. That is very uncomfortable. If maybe the test could be done in a different way which is more acceptable, more women would be willing to be screened". (FGD 1, Participant 2, 29 years, 3 children, married, secondary education, not screened)

"The other big challenge is exposing your private parts. You hear women saying that they have no choice when they are in labour and delivering but when you are not sick, it is difficult to just open up your legs for the nurses unnecessarily. That's the other major thing which women are not comfortable with. Maybe if there could be a different way of screening, the uptake would be much higher than it is now". (FGD 2, Participant 2: 43 years, 5 children, married, secondary education, screened)

"[Women] are not comfortable undressing for other people and exposing their private parts. They say it's uncomfortable enough when they give birth and then now again". (CHW 2, mining community)

3.2.4.7 Professional service providers

The quality of health care providers was seen as a determinant of utilising screening services. Women reported that negative staff attitudes are a disincentive to screening. Recommendations were that health care providers be more accommodative especially considering the nature of the procedure that on its own is uncomfortable.

"Others have complained that the nurses are rough. You are told "open up your legs faster, I have a lot of work to do" ….. It discourages women. We request nurses to be kind. The thing is you would have been told by other women that the procedure is painful, so you are bound to be hesitant when you climb onto that bed then you get shouted at. That's why the procedure becomes painful because if the nurse is angry, they will not be gentle when inserting that instrument. They want to move the queue fast." (FGD 1, Participant 5, 50 years, 3 children, widowed, secondary education, screened)

"You see, the problem is you get there and the person who has to screen you is your neighbour. I will tell her that I have had 10 sexual partners. Before the end of the day ahh, the whole township will be knowing. The nurses have no confidentiality generally, but sexual matters are even more sensitive. So, women will prefer not to go to the clinic than have their sexual history displayed as some nurses cannot keep your secret information to themselves. They broadcast it". (FGD 1**,** Participant 6, 38 years, 3 children, single, secondary education, not screened)

One health care provider confirmed that women have complained about the unprofessional way nurses conduct themselves.

"Then without looking far, even we the health workers, we always have patients coming to us…they tell us that nurses treat them badly. So, bad attitudes of the nurses could be another barrier… attitudes of the staff towards the clients should change" (Midwife, RHC 1)

3.2.4.8 Acknowledgement of traditional ways of dealing with cervical cancer related issues

Across all FGDs, women reported that communities still hold strong beliefs in traditional medicine. Consequently, they would first seek the services of traditional healers before seeking medical services. Alternatively, they start at the clinic then resort to traditional or spiritual healers if their condition does not improve. The reason is because cervical cancer is perceived to be a disease caused by witchcraft. Such practices result in screening delays. The suggestion was to find common ground and integrate these two services for improved uptake of cervical cancer screening.

"Culturally we understand cancer to be a disease which occurs because someone has bewitched you. It's not a disease that can just start. This applies to all types of cancers be it in the lungs, hand or legs or where ever. So, what is needed is to first remove such beliefs in women before you can expect all women to accept screening. They have to understand that screening helps in the prevention of cervical cancer". (FGD 1, Participant 4, 50 years, 2 children, widowed, tertiary education, screened)

"Others [women] would go to these churches which prophesy or to traditional healers because they always think they will have been bewitched if they get any illness. The problem with us African people is that we put so much importance on issues of witchcraft". (FGD 2, Participant 3, 45 years, 4 children, married, secondary education, screened)

"Yes, there are some who run to traditional healers because they have not yet fully understood how dangerous cervical cancer is. Others also seek help from these churches which prophesy and also claim that they can treat cancer, instead of going to the clinic. (FGD 3, Participant 1, 47 years, 3 children, married, secondary education, screened)

"Women now tend to combine both traditional methods with medical treatment just to be on the safe side". (FGD 5, Participant 2, 40 years, 10 children, married, primary education, not screened)

"Usually, women will start at the clinic immediately they feel unwell and if the clinic treats you and you get well, fine. But if nothing changes or things get worse, then we may think of going to consult either traditional healers or prophets depending on your beliefs". (FGD 5, Participant 3, 31 years, 3 children, married, primary education, screened)

"Many people still go to traditional healers for problems to do with cancer because there, it can be completely healed. In hospitals, you are only given something to weaken the pain and they also burn the area where the cancer is, but they don't know how to completely cure it". (FGD 4, Participant 6, 37 years, 3 children, married, secondary education, not screened)

Interestingly, one participant belonging to a religious sect that 'cures' cervical cancer described the preparation and treatment procedure as follows:

"You have to get the treatment before you go to the clinic. You cut your lemons and boil them, then you add cooking oil, and a bit of salt. Then boil these for a long time till the mixture becomes brown. Then we strain it using a cloth to make sure no particles remain. Then we soak cotton wool in the solution and insert it in the vagina and leave it there for some hours. This pack pulls out all the impurities from the cervix and removes all cancer cells which will be starting. Even if its cancer that has progressed the dead cells get removed then fresh cells are pulled together. We have some women who had this cancer of the cervix in 2012 and we treated them. Up to now they are still well and healthy". (FGD 4, Participant 4, 47 years, 3 children, married, primary education, screened)

It was surprising to note that some community-based health workers also believed that cancer can be treated traditionally hence it was important not to discourage women from seeking traditional healing:

"Then for those who believe in traditional methods of attending to cervical cancer, education should be continued. They can even be told to start at the clinics for screening and treatment if they need to be treated then resort to their traditional methods if it does not respond. That way they will feel their beliefs are also recognised and this might kill the resistance. Some diseases are treated traditionally but the problem is that there is no cleanliness…." (CHW, rural community 2)

The existing strengths and facilitators for cervical cancer screening in Gwanda district identified in this study are summarised in Table 4.

Table 30: Strengths and facilitators for cervical cancer screening matrix

			Existing strengths in favour of VIAC programme	Facilitating factors
THEMES		**Individual influences**	• Women's willingness to be screened	• Awareness and knowledge on screening • Personal experience with cervix cancer • Ill health
		Interpersonal influences	• High acceptance of VMMC by men in the district	• Male partner support
		Community influences	• Cervical cancer known as killer disease • High church attendance by women	• Community involvement in VIAC programme planning and implementation
		Health system influences	• On-going awareness campaigns • Availability of male CHWs • Availability of screening services • Improved availability of human resources for VIAC programme	• Adequate funding for VIAC programmes • Well informed service providers • Accessibility to screening services • Expanded community outreach services for screening • Access to free treatment • User-friendly screening methods • Professional service providers • Acknowledgement of traditional ways of dealing with cervical cancer related issues

4.0 Discussion

The study sought to examine the existing strengths and facilitators that could be incorporated into the cervical cancer screening programme in Gwanda district, Zimbabwe. Such knowledge could inform the development of appropriate demand creation strategies to increase uptake of screening. Among the identified strengths that the VIAC programme could saddle on was women's willingness to be screened, more so in rural areas. This was demonstrated at outreach sites where women falling outside the target group of the implementing partner report for screening nonetheless, an indication that screening prevalence could increase if the service were readily available.

Findings are consistent with results from other studies conducted in Uganda (27,28), where women similarly reported interest in regular cervical cancer screening, citing the need to prevent the disease and get early treatment if that was necessary. This compelling factor could be augmented with intense and sustained

educational efforts to empower women with full knowledge related to cervical cancer and screening. The MOHCC coordinated integrated outreach team that services hard to reach areas could be used to the advantage of the VIAC programme through expanding awareness creation activities to integrate screening. Synonymous with the provincial hospital practice, the integrated outreach service could open up screening to all willing women who are sexually active irrespective of HIV status.

Although women wish to be screened, the major missing link is unavailability of screening services close to where they reside. While the ZCCPCS vision of increasing the number of VIAC clinics nationally (also widely implored by women and service providers for Gwanda district) is slowly being realised, expanded outreach services could in the interim fill this gap. Other studies have also established that women who have available and accessible health centers that offer screening are more inclined to utilise the service (28,29). This observation reinforces the critical need of establishing screening sites at all primary health facilities in order to improve access of services. Extensive collaborative efforts between the MOHCC, development partners and the community in mobilising external funding to supplement the internally allocated budget for the VIAC programme are required.

Availability of screening services supplemented with on-going education on cervical cancer within communities could facilitate increased uptake of screening. The information package for cervical cancer education should be standardised so that all women get the fundamental knowledge on the disease and screening including the fact that medical male circumcision reduces the chances of developing cervical cancer. This study recommends that cervical cancer education be integrated with related interventions such as the VMMC programme which is also running in the district and coordinated by another development partner. Support for an integrated approach to cervical cancer prevention as opposed to a vertical approach just focusing on cervical cancer screening could be achieved through collaboration among stakeholders, which could also increase male partner support for screening.

Furthermore, the offer of free screening is an enabler that could further be enhanced by offering free treatment for subsequent interventions required. This study found that although screening was free, treatments associated with the result were prohibitive. Other studies have likewise observed a positive correlation between availability of free cervical cancer screening services and the uptake of screening (28).

Surprisingly though, this study found that women in urban areas demonstrated less interest in screening although they have better access to screening services. This was shown to be due to negative attitudes and knowledge gaps on cervical cancer. While this finding is contrary to the predominantly observed pattern where women residing in urban settings are more exposed to screening information and centers and therefore most likely to seek screening, it affirms findings from other studies which revealed that even if opportunities to screen are available, women will always report other barriers (30,31). Consequently, factors that hinder positive cervical cancer screening behaviours need to be addressed holistically before the VIAC programme can be scaled up.

As an integral part of any screening method, the World Health Organization (WHO) advocates for the treatment of at least 90% of women identified with precancer lesions (16). Participants in this study however explicitly specified that most women who get screened at outreach clinics fail to access treatment because they still need to travel to the provincial hospital for that service. Evidence from the midterm review of the ZCCPCS (2016–2020) revealed that treatment during outreach programmes is challenged by limitations in the transportation of nitrous oxide tanks that are heavy, and the high cost of the gas (32). This has negatively impacted the frequency of outreach services that are critical in hard-to-reach areas.

Ndejjo et al (27) alludes that availability of screening services alone does not suffice in the facilitation of screening. Other resources that include trained personnel are also crucial to get the programme up and keep it running. This study demonstrated that nurses who have not been trained in VIAC largely had insufficient knowledge on screening and subsequently did not motivate women for screening. This could be due to lack of confidence on the subject, a situation that results in many missed opportunities for screening among women. What is more, community-based health workers also highlighted their inadequacy in cervical cancer knowledge and wished to be trained. Previous studies have also revealed that health workers that have not been trained in cervical cancer screening tend to have knowledge gaps on the subject and exhibit negative attitudes towards clients (32).

The engagement of a Consultant Obstetrician and Gynaecologist by the provincial hospital round the time the study was conducted injected a boost into the VIAC programme in terms of increasing the capacity of VIAC trained nurses and treatment opportunities for women who test VIAC positive. It is envisaged that more nurses including those stationed at RHCs will be trained on an on-going basis. This will enable provision of cervical cancer screening services by all health facilities in the long term and ensure service providers that are competent in the education and recommendation of cervical cancer screening to women. Moreover, community-based health workers also need to be equipped with comprehensive knowledge on cervical cancer and screening that will enable them to disseminate information with confidence. All training should include a refresher component on the ethos of the profession to promote positive staff attitudes that are a facilitator to screening. With an equitable increase in VIAC funding, equipment should be made available to all primary health centers in phases and ultimately, women should access VIAC services with minimal barriers.

At the interpersonal and community levels, involvement of male partners and the community was seen as an effective way of increasing women's participation in cervical cancer screening programmes. Prior studies have also revealed that male participation programmes integrate a fervent approach to social mobilisation, peer to peer motivation and mutual visioning that could result in attitudinal change at individual and societal levels (33). In addition, community involvement provides a robust approach to the implementation of cervical cancer prevention programmes.

The experience of the Alliance for Cervical Cancer Prevention (ACCP) talks to this (34). Establishment of community partnerships for enhancement of culturally appropriate services and identification of effective ways to encourage women to accept screening is attainable through listening to, and learning from communities

(34). Acknowledging communities' traditional ways of preventing and managing cervical cancer could be another way of eliminating resistance to screening as revealed in this study. Although the context could be slightly different from our study, an Iranian study also identified a mismatch between tradition, modernity and religion that presented challenges to cervical cancer screening (35). Societal behaviour is driven by religion [and traditional beliefs] that influence how people perceive disease and act on it. (36). Subsequently, VIAC programmers need to acknowledge and appreciate the convergence of tradition and the fundamentals of public health in the lives of women and formulate strategies to combine the best of both systems. Our study recommends training of traditional and religious leaders on cervical cancer and providing support for cultural sexual practices that prevent HPV transmission.

Overall, these findings emphasise the importance of a community-based approach to cervical cancer prevention and control. This can be achieved through involving key societal groups constituting women, men, community leaders and civic organisations as relevant stakeholders in the planning and implementation of screening programmes.

Discreetness in attending health services by women whose religion constrains them from seeking medical attention is a positive aspect for the VIAC programme. Application of the community involvement concept could generate support from church leaders. Continued engagement of concerned religious leaders could result in their acceptance and endorsement of screening. Consequently, women congregants who already demonstrate positive attitudes to health services would be further encouraged to screen.

In this study, knowing someone with cervical cancer or that died from the disease was seen as a facilitator for women to attend screening. Findings are consistent with results of many studies from a systematic review conducted in Uganda (37). In these studies, women with a personal or family cervical cancer experience through illness or death had higher motivation to seek screening. This therefore necessitates the need to train cervical cancer survivors as peer educators which might aid women to understand that the disease is real but curable and the only way to know which will facilitate initiation of interventions is through screening.

Finally, this study revealed that women were not comfortable with the way the screening procedure is conducted as it infringes on their privacy. This concern has been documented in many other studies which also highlighted that many women do not like pelvic examinations due to the discomfort and embarrassment they cause, thus presenting a barrier to screening (27,29,37–40). HPV vaginal sampling which does not require a pelvic examination has the potential to significantly increase access to screening (40). However, simply providing new screening technologies and approaches is insufficient to ensure uptake of screening (40) as there are other dynamics at play .

The health system of Zimbabwe should endevour to universally reinforce the primary health care approach (availability, acceptability, accessibility and affordability of services) (41) in its delivery of the cost-effective VIAC 'screen and treat' approach that is optimally attained in a single visit, and implementable at the lowest

health level by nurses. Further research is however required to look at the feasibility of adopting HPV self-sampling tests or developing alternative client-friendly low-cost screening tests.

5.0 Strengths and limitations

This study obtained the views of both recipients and providers of screening services which enabled corroboration and triangulation of findings to increase validity of the research. Data that depicts enablers of screening is essential to direct development of strategies that may increase the uptake of screening integrating the views of the key stakeholders. Secondly, the FGD method used for collecting data from women could have swayed participants to respond in more socially acceptable ways. This could have resulted in information bias from intentional misreporting of information. Efforts were however taken to minimise this through posing questions in a neutral way. Lastly, while overall concurrence was ascertained between women and health providers on the facilitators to screening that could be applicable to other similar settings in Zimbabwe, the study acknowledges that the data is analysed from the perspective of health workers and female partners and no data was collected directly from the male partners and community leaders. Exclusion of these stakeholders means that some facilitators to screening could have been missed. Further research focusing on men and community leaders' perceptions of facilitators to cervical cancer screening is recommended.

6.0 Conclusions

The major strengths that work in favour of the screening programme were identified as women's willingness to be screened, awareness campaigns that are on-going, availability of male community health workers, improvement in the availability of VIAC trained nurses and screening sites, and the high proportion of women that attend church services. These factors at the individual, community and health system levels of influence could yield positive outcomes for cervical cancer screening attendance if adequately exploited and supported. Women's knowledge about cervical cancer screening, male partner support and community involvement in the planning and implementation of cervical cancer screening programmes were found to be key facilitators to screening at the individual, interpersonal and community levels of influence. At the health system level, important facilitators were related to the availability and accessibility of screening services and treatment, competent and professional service providers, user-friendly screening methods and integration of indigenous and traditional knowledge on cervical cancer.

The interplay between individual, interpersonal, community and health system factors that influence women to seek screening services present a need to enhance the facilitators in a methodical way that will not create a gap in any of the levels of influence. To take advantage of women's willingness to screen, efforts should be focused on providing screening services at local primary health facilities, improving knowledge and awareness on cervical cancer screening to enable services to be used and integrating cervical cancer messaging into related interventions, and increasing the capacity of the health system to handle large volumes of women that would demand screening. On the whole, adequate funding should be allocated to provide the essential resources that would enhance facilitators to screening at all the four levels of influence.

7.0 Declarations

List of abbreviations

ACCP: Alliance for Cervical Cancer Prevention; CHW: Community Health Worker; FGD: Focus Group Discussion; HIV: Human Immunodeficiency Virus; HPV: Human Papillomavirus; IDI: In-Depth Interview; LMIC: Low and Middle Income Countries; MOHCC: Ministry of Health and Child Care; OIC: Opportunistic Infections Clinic; OPHID: Organisation for Public Health Interventions and Development; RHC: Rural Health Center; SDG: Sustainable Development Goal; VIAC: Visual Inspection with Acetic acid and Cervicography; VMMC: Voluntary Medical Male Circumcision; WHO: World Health Organization; ZCCPCS: Zimbabwe Cervical Cancer Prevention and Control Strategy: ZDHS: Zimbabwe Demographic and Health survey.

Ethics approval and consent to participate

Ethical clearance and institutional approval for this study were obtained from the following bodies: Stellenbosch University Health Research Ethics Committee (Reference number: S20/09/259), Medical Research Council of Zimbabwe (Reference number: MRCZ/A/2426), Zimbabwe Ministry of Health and Child Care, Provincial Medical Director of Matabeleland South Province, Gwanda Provincial Hospital and the District Medical Office of Gwanda. Written informed consent was obtained from all participants after full explanation of the purpose of the study, its benefits and potential risks.

Consent for publication: Not applicable

Availability of data and materials

The data sets used and analysed during the current study are available from the corresponding author on reasonable request.

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Authors' contributions

FM, A PhD student at Stellenbosch University conceptualised the study, coordinated the data collection process, analysed the data and wrote the first draft of the article. YT and VS gave input and oversight into the design of the study, data collection and analysis and guided FM in the compilation of the first draft and critical review of the manuscript. All authors read and approved the final manuscript.

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SECTION C: CONCLUDING CHAPTERS

Chapter 10: Discussion

10.1 Introduction

Findings of the study have been presented and discussed as individual articles in Chapters Five to Nine. This chapter aims to consolidate and discuss the findings based on the frameworks that guided the study and applied it to data analysis. The study revealed that factors at individual, interpersonal, community, health system and structural levels of influence could explain barriers to cervical cancer screening in Gwanda district. The chapter ends with developing a framework that can be applied to increase uptake of cervical cancer screening, informed by the perspectives of women and health service providers.

10.2 Integration of quantitative and qualitative findings of the mixed method research

The results of this study were analysed and discussed separately in Chapters 5 and 6 (quantitatively), and in Chapters 7 – 9 (qualitatively). This section integrates the findings to provide a broader picture of how the quantitative and qualitative methods complement each other for development of overall interpretations. As highlighted in the methodology chapter Section 4.1.2, the mixed method approach allows for convergence and corroboration of findings obtained from different sources (1). This increases the trustworthiness of the findings. Interpretation and explanation of quantitative and qualitative results facilitated further discussion, implications and areas for future research which are presented in the next chapter. Merging with matrix, a method that entails integrating the results from the two methods and comparing them to identify differences and similarities in data was used. Merging by data transformation was also applied to quantify qualitative information (see Table 2 of Chapter 7) in order to determine the most serious barriers women faced in accessing screening (2). There was convergence in quantitative and qualitative data as seen in Table 10.1.

Table 310.1 : Comparison of quantitative and qualitative data

Variable	Quantitative findings	Qualitative findings
Participants characteristics	Women aged 25-50 years	✓ Women aged 25-50 years ✓ Health service providers of different categories and levels of operation (CHWs, nurses, doctors)
Data collection method	Survey (609 participants)	✓FGDs with women (5 groups) ✓In-depth interviews of health care providers (25 participants)
Cervical cancer screening awareness	85.06% of women aware of cervical cancer screening programmes	✓ The community is fully aware of this disease and the screening programme that is taking place because we do campaigns regularly (Nurse, urban clinic). ✓ People know about this programme because it's talked about everywhere (CHW, rural community). ✓ Most of them are aware (Nurse, Mine clinic).
Knowledge on cervical cancer	80.28% had inadequate knowledge on the principal cause of cervical cancer, its risk factors, signs and symptoms and preventive measures	Women have little understanding of the disease. The problem is that the information comes as highlights and women remain with many questions which are not answered. (VCW, mining community)
Screening related knowledge	Only 30.12% of the women had adequate knowledge on cervical cancer screening	✓ People who have knowledge on VIAC are very very few compared to the number of people who need to be screened (Doctor). ✓ Most women still need more information on cervical cancer screening, especially women coming from the rural areas; people don't know much (VIAC nurse). ✓ Women have not yet received enough information which would make them fully understand the importance of screening (VCW, mining community).
Attitudes towards screening	✓ Based on the composite score, 58.6% of participants had positive attitudes towards screening ✓ 97.5% wished to learn more about screening ✓ Of the participants who had never been screened, 92.25% wished to be screened	✓ The acceptance of the screening programme is very good, and women are willing to be screened but ...(VCW, rural community) ✓ The ones in the rural areas have interest because most women come wanting to be screened. Outside town they are more interested more than the ones in town. The ones in town show less interest (VIAC nurse) ✓ Women are not that keen [because of] the nature of the questions which are asked as part of the screening procedure (FGD participant, urban) ✓ I have heard women encouraging others to be screened... (Nurse, Mine Clinic)
Screening prevalence	30.05% of participants had been screened for cervical cancer at least once	✓ It's not many who have been screened because of distance to Gwanda (Nurse, Mine clinic) ✓ Women are not that keen, and not many have been screened (FGD participant, urban) ✓ The uptake is low and is influenced by the unfriendly environment at the clinic (FGD participant, urban) ✓ We usually have challenges on the uptake of new programmes so few women have been screened. But I can safely say from 2019, the uptake is improving (Nurse, RHC)
Key barriers to cervical cancer screening	Based on factor analysis, the following contribute the most serious barriers to screening: ✓ Knowledge gaps on cervical cancer screening **(individual factors)** ✓ Inaccessibility of screening services **(health system factors)** and, ✓ Socio-cultural beliefs **(interpersonal and community factors)** Conclusion Barriers to cervical cancer screening are multi-factorial and vary by residential location	Based on merging by data transformation, the following emerged as prominent barriers to screening: ✓ Lack of knowledge on cervical cancer and screening **(individual factors)** ✓ Inaccessibility of screening services especially for rural and mine communities **(health system factors)** ✓ Socio-cultural beliefs **(interpersonal and community factors)** and, ✓ Financial constraints which restrict women from travelling to screening sites and/or paying associated fees although the screening itself is free **(individual factors)** Conclusion Barriers to cervical cancer screening are multi-factorial and vary by residential location

Major findings from this study are no different from those conducted in similar settings where lack of knowledge about cervical cancer (3,4), unavailability and inaccessibility of the test (5) and socio-cultural and religious beliefs (6) have been found to present challenges to cervical cancer screening. Contrary to findings of other studies conducted in Sub-Saharan Africa which reported low level of awareness on cervical cancer screening services (7), the awareness level in this study was very high. This could be the result of continuing awareness campaigns being implemented nationwide as advocated by the ZCCPCS, which provides an incentive and opportunity for the successful implementation of other cervical cancer prevention and control interventions.

10.3 Theoretical implications

10.3.1 Health system facilitators and barriers to cervical cancer screening based on the WHO health systems framework

Health system-related factors contribute substantially to cervical cancer screening barriers in Gwanda district. This conclusion considers the health service delivery point's role of conducting community mobilisation activities, ensuring information, education and communication (IEC) materials' availability, and providing technical support in its areas of operation (8). The WHO framework's 'six building blocks for strengthening health systems (9) referred to in Chapter one, Section 1.2.1, provided the framework for identifying facilitators and barriers to screening in Gwanda district as shown in Table 10.2.

Table 10.32: Health system challenges and facilitators to cervical cancer screening based on WHO health systems framework

BUILDING BLOCK	STRENGTHS AND FACILITATORS	IDENTIFIED BARRIERS
Leadership and Governance	✓ National cervical cancer prevention and control strategy is available to guide screening activities ✓ OPHID, an implementing partner, is providing technical and financial support for the VIAC programme, including outreach services to rural communities	✓ Most health providers are not aware of the ZCCPCS to effectively operationalise it ✓ The outreach programme only targets women on ART ✓ Poor infrastructure offering little privacy poses a barrier to screening ✓ Limited coordination between VIAC clinics and other hospital departments thus negatively impacting awareness creation strategies
Service delivery	✓ Accessible screening services ✓ Free screening services ✓ Free treatment for all screening related services ✓ Consistent outreach services	✓ Screening services not actively provided as part of routine preventative services for women ✓ Only two out of 30 facilities in the district provide VIAC screening, which limits women's access to services ✓ VIAC services not available at RHCs and mine clinics. ✓ Screening not provided during weekends and public holidays ✓ Women screened at outreach clinics are referred to the provincial hospital for treatment; hence a single visit approach is not used for the treatment of precancerous lesions. This increases the rate of loss to follow up. ✓ Most women screened at outreach clinics fail to access treatment from the provincial hospital due to financial constraints on transport costs
Human Resources for Health	✓ Professional staff with up-to-date knowledge and skills on cervical cancer and screening ✓ Recent appointment of a Consultant Obstetrician and Gynaecologist. Training of nurses now conducted locally.	✓ Shortage of nurses trained to provide screening services.
Equipment, supplies and medical products	✓ Availability of screening equipment and consumables	✓ Shortage of equipment at the provincial hospital such that services cannot be provided at two units at the same time. This limits the number of women who can be screened per day. ✓ Shortage of equipment for mobile clinics
Financing	✓ Adequate funding of the VIAC programme to ensure availability of screening essentials	✓ The contribution of the government to the VIAC programme is not clear and most funding is by development partners ✓ Budget not adequate for procurement and servicing of equipment.
Information		✓ Poor information sharing between outreach team and RHCs.

Based on these identified barriers, the health system could address those amenable to change through applying the facilitating factors to the advantage of the programme for effective and efficient delivery of cervical cancer screening services as stipulated in the current ZCCPCS (8).

10.3.2 The SEM as a tool for determining barriers to cervical cancer screening

The SEM adapted from Kaufman et al (10) provided the conceptual framework for this research, chosen for its ability to provide an understanding of health outcome influences (uptake of cervical cancer screening) beyond the individual woman (11). The generated data fitted well into the conceptual framework. Barriers to cervical cancer screening identified from the qualitative aspect of this study are summarised in Figure 10.1.
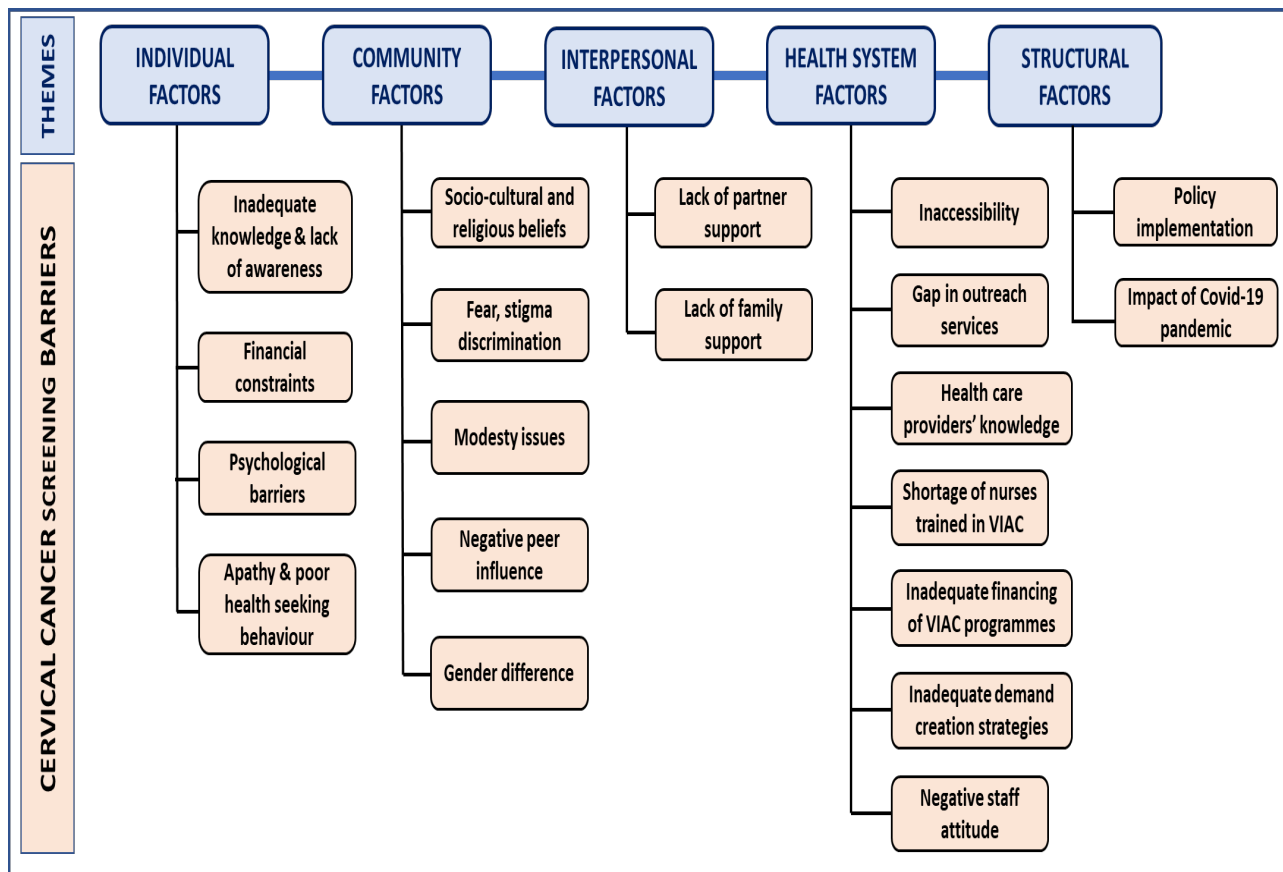
Figure 10.1: Summary of qualitatively identified barriers to cervical cancer screening in Gwanda district

It is envisioned that the categorisation and relationships between concepts will be pertinent to policy makers, VIAC programme managers and future researchers. The adapted SEM to suit the overall study data that explain the barriers to cervical cancer screening is summarised in Figure 10.2.
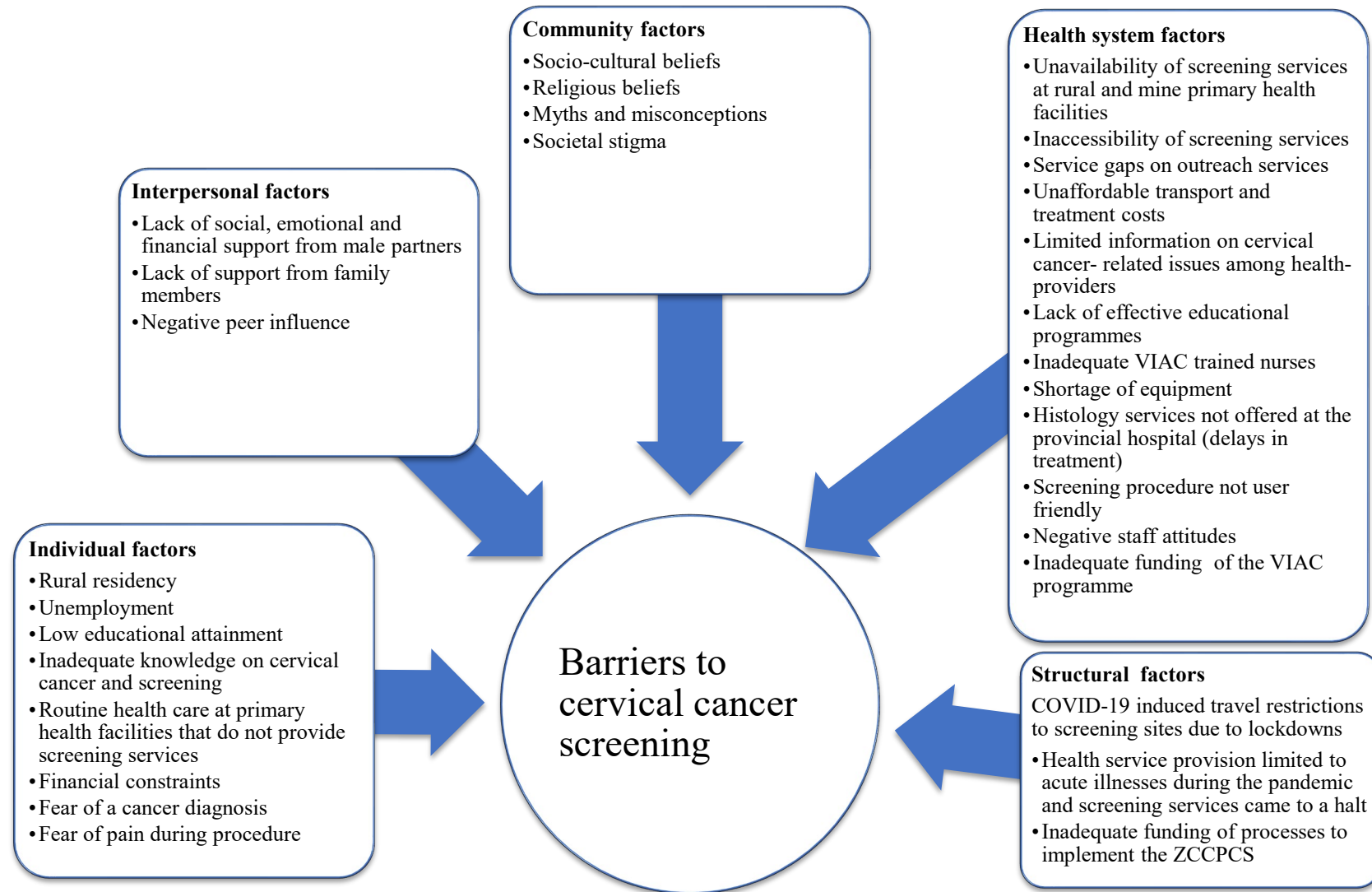
Figure 10.2: Adaptation of the socio-ecological model to the study data

From the illustration in Figure 10.2, the SEM assisted in the systematic classification and explanation of factors associated with barriers to VIAC screening, confirming that women's decision to undergo screening cannot be comprehended in isolation of their significant others, culture and situations prevailing at the level of the health system. Thus, the SEM applicability in examining factors hindering effective utilisation of services was demonstrated, providing additional support for other studies (12) that have used the SEM to explore barriers to the uptake of screening.

10.4 Theoretical framework development

From the adapted SEM reflecting barriers to screening and facilitators highlighted by participants, we develop a data driven theoretical framework that could be used to inform strategies appropriate for addressing critical barriers without violating key stakeholders' beliefs. The factors that serve as barriers and facilitators to screening alluded to in this study are summarised in Figure 10.3. Interventions that can be applied to improve screening uptake are suggested, referred to as 'contributory factors' to facilitators for screening in the developed framework.

10.5 Scientific contributions of the study

As one of the few studies to explore barriers to cervical cancer screening among women in Zimbabwe and the first known to directly explore the obstacles from health service providers' perspective, this study has extended knowledge on screening behaviours and barriers women face in accessing screening services. Furthermore, the study has identified facilitators to screening that could be built on and supported to achieve the expected screening rates. Previous studies have assessed challenges faced by women in Sub-Saharan Africa (5,13) and Zimbabwean rural settings (14,15). This study has highlighted important differences in barriers to screening between urban, mine and rural based women, elucidating inaccessibility of services as mostly affecting rural and mine based women, psycho-social barriers as mostly affecting urban women and knowledge deficits common to both groups. This demonstrates a clear direction on relevant strategies to apply, appropriate to each setting and class of women. Also, similar aspects considered as barriers to screening are shown between women and health providers. In the context of broader policy and strategy development and revision and review of screening guidelines at the MOHCC level, these findings contribute to addressing key common barriers from both service recipients and providers' perspectives.

This study tapped onto a very salient contributor to poor screening uptake, cutting across all areas of residence and educational level. A strong belief in the supernatural causation of cervical cancer and the faith in its effective management through traditional and spiritual means were unmasked. Subsequently, women's cultural and religious backgrounds influence their decision to forego or delay screening until all other avenues have been exhausted. Custodians of culture and concerned religions would also want to preserve their indigenous knowledge and practices related to cervical cancer hence giving conflicting messages from that of the health system. This study contributes to the importance of indigenous knowledge in the acceptance of health programmes. A need was seen to recognise and acknowledge indigenous knowledge, and to enhance cultural

247

competence among health providers to apply culturally sensitive approaches when providing cervical cancer screening education.

A fundamental insight of the current study is that women and health providers corroborated women's determination for screening. This coupled with application of highlighted facilitators to screening that include filling knowledge gaps on screening among communities and health providers, making screening facilities more accessible and providing free treatment for women who test positive could result in attaining the desired screening rates. The adoption of an integrated as opposed to a vertical approach could greatly increase the uptake of cervical. This can be achieved through including cervical cancer screening messages into related interventions such as the VMMC, as have been successfully implemented with the ART programme in the district. The theoretical framework developed from the findings contributes knowledge on addressing the barriers to cervical cancer screening in the local context.

10.6 Conclusion

In Chapter Five, we were introduced to the limitations in women's knowledge on cervical cancer and screening. This was further explored in Chapter Six. Knowledge on cervical cancer and screening, inaccessibility of screening and treatment services and socio-cultural and religious beliefs were seen as major barriers to screening. Chapter Seven focused on barriers to cervical screening from the perspectives of health service providers, findings of which were similar to those barriers identified by women, in addition to a disruption in the delivery of screening services that was imposed by the COVID-19 pandemic. The results of Chapter Eight suggest that under the barriers related to socio-cultural beliefs, men contributed to poor screening uptake by not supporting their partners in screening decisions. This was attributed to lack of knowledge. Chapter Nine identified facilitators to screening from findings obtained in Chapters Five – Eight. This Chapter has summarised the findings and developed a theoretical framework that lays the foundation for the development of contextualised strategies for addressing barriers to cervical cancer uptake in Gwanda district and other similar settings in Zimbabwe.
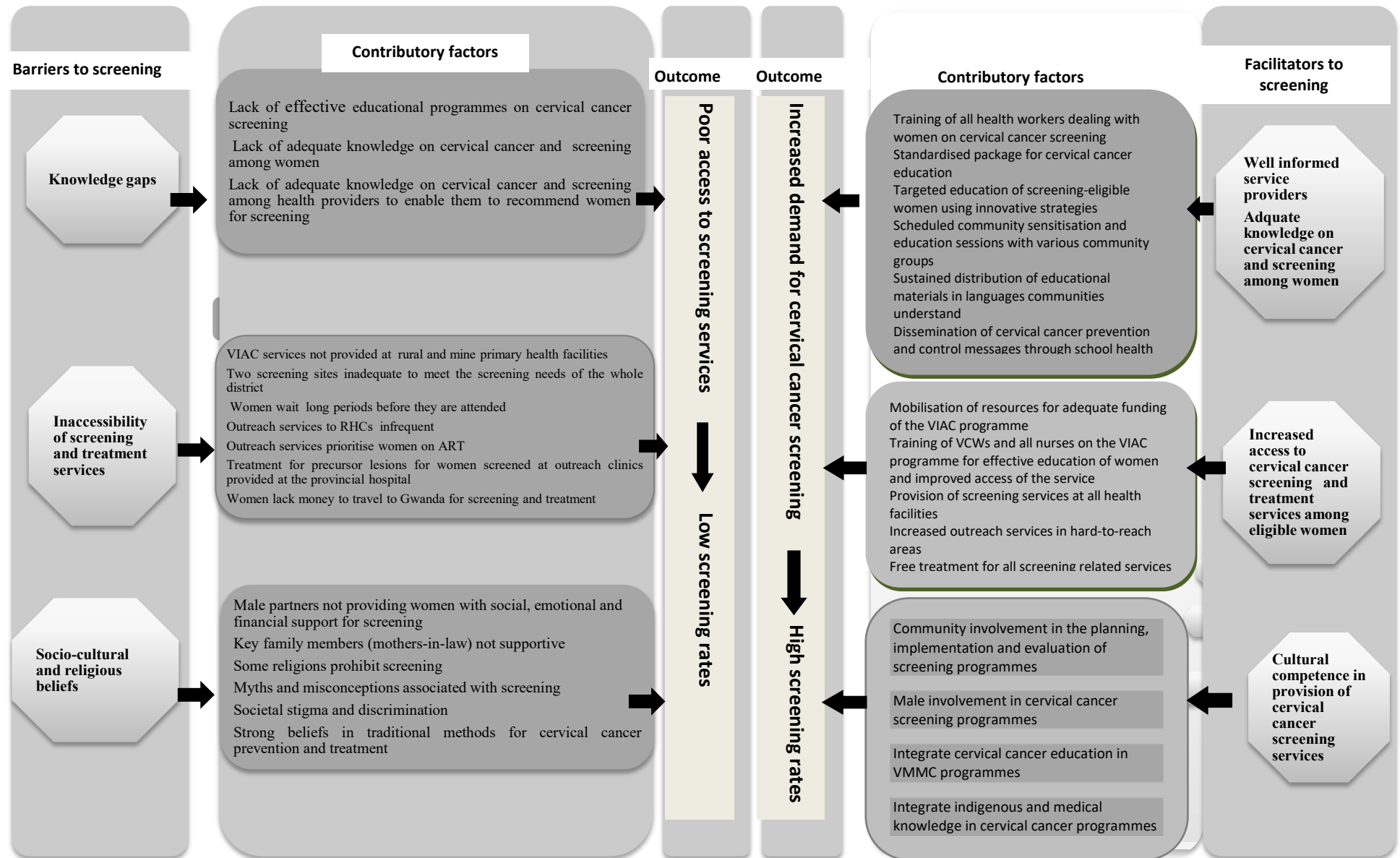
Figure 10.3: Framework for understanding barriers to cervical cancer screening

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Chapter 11: Conclusion and future directions

11.1 Introduction

This study explored barriers to cervical cancer screening in Gwanda, a hybrid district in Zimbabwe that comprises urban, rural and mining areas. The study aimed at determining factors that influence the poor utilisation of cervical cancer screening services in the district. At the same time, the study examined the strengths and facilitators for screening that could increase its uptake. A sequential mixed-method research design was employed to achieve this purpose. Quantitative data were collected first, and results used to inform the development of instruments for collecting qualitative data which enabled data triangulation (1). This final Chapter summarises the dissertation's major findings by objective, discusses the study's strengths and limitations, and highlights the research implications for programme implementers and coordinators, and policy makers. Directions for future research are also indicated.

11.2 Summary of major findings

Based on the five studies presented in Chapters five to nine, this dissertation contributes new knowledge to women's SRH and wellness in Zimbabwe concerning the delivery of cervical cancer screening services. These studies have contributed to a better understanding of the barriers that contribute to the undesirable low utilisation of cervical cancer screening services, and screening facilitators. Recommendations on how these barriers can be addressed have been given, and facilitators reinforced. This study's findings can inform future studies that seek to improve women's participation in cervical cancer screening programmes in similar settings.

11.2.1 Objective 1: Socio-demographic factors associated with uptake of cervical cancer screening

In Chapter Five, the socio-demographic characteristics associated with cervical cancer screening were analysed. The study found that living in urban and mining areas, higher educational attainment, being employed, accessing routine health services from the mine and urban clinics and the provincial hospital that provide screening services, and having a history of cervical cancer in the family were significantly associated with higher uptake of cervical cancer screening. Inversely, living in rural areas, being unemployed, accessing health services from a RHC where screening services are not provided and having no history of cervical cancer in the family were significantly associated with lower screening rates.

11.2.2 Objective 2: Women's knowledge, attitudes and behaviours related to cervical cancer and screening

Women's knowledge, attitudes and practices related to cervical cancer screening were also assessed in Chapter Five. Overall, the results indicate that women in the study district have limited knowledge on cervical cancer and screening, and most have not been screened (69.95%). However, they are highly aware of the VIAC programme and demonstrate positive attitudes towards screening. Limited knowledge was most palpable

251

among women who lived in rural areas, had the least education and were unemployed. Findings on knowledge were similar from both quantitative and qualitative results and negatively impacted women's decision to participate in screening.

11.2.3 Objective 3: Factors perceived as barriers to cervical cancer screening by women

In Chapter Six, barriers to cervical cancer screening were identified quantitatively from the perspectives of women. Living in urban and mining areas, receiving routine health care from urban and mine clinics and the provincial hospital that provides screening services, knowledge of one's HIV status and having higher levels of knowledge on cervical cancer and screening were found to be significantly associated with lesser chances of facing barriers to screening. Consequently, women who live in rural areas and attend routine health care at health facilities that do not provide screening services face the most barriers.

In the secondary analysis, women who received routine health-care from the mine and urban clinics were more likely to face screening barriers than women who used RHCs. This could be linked to psycho-social barriers more than physical access to the service, further investigated during FGDs. From the qualitative results, knowledge gaps on cervical cancer screening, poor access to screening services and socio-cultural beliefs were identified as the predominant factors that impeded screening uptake. At the interpersonal level of influence, men's lack of emotional, social and financial support of their partners with screening decisions and the practice of risky sexual behaviours were observed. This increased women's risk for developing cervical cancer and was associated with men's lack of knowledge and disinterest in women's reproductive health issues.

11.2.4 Objective 4: Barriers to cervical cancer screening from the perspective of health care providers

In Chapter Seven, barriers to cervical cancer screening among women were determined from health providers' perspectives. The same factors identified by women as major barriers to screening were confirmed. These were lack of appropriate knowledge and understanding of cervical cancer and screening by both women and health workers who are not directly involved in VIAC screening, lack of accessible screening facilities and treatment services especially for rural communities, and socio-cultural beliefs that had a negative impact on the uptake of screening. Inadequate human and material resources for screening due to poor financing of the programme and lack of male partner support were also identified as key barriers. Health providers with awareness creation and educational roles expected to encourage and recommend women for screening fail to effectively fulfill their responsibilities due to lack of confidence on the subject. Basic training on cervical cancer and VIAC screening processes was recommended for health providers at all levels of health care. This could enhance the effective provision of health education that would motivate more women to seek screening. Men reportedly neglected to support their partners on screening due to a lack of knowledge on cervical cancer in general, and on the purpose of screening. The COVID-19 pandemic that necessitated rendering of only critical services also reduced the provision of cervical cancer screening services.

11.2.5 Objective 5: Strategies to increase access to screening

In Chapter Nine, the strengths and facilitators that could improve the uptake of screening were examined. Although barriers to cervical cancer screening were manifold at the individual, interpersonal, community and health system levels of influence, it was demonstrated that factors that can be manipulated and developed to offset the prevailing barriers to screening subsist. Despite the overall limitations in knowledge on the causes and preventive strategies for cervical cancer and the purpose of screening, participants asserted that women are willing to be screened. This suggests that if enabling factors are applied, more women could come forward for screening. Churches were identified as suitable media to reach large numbers of women with cervical cancer and screening messages since most women attended church. Accessibility of screening services was seen as the most important facilitator to screening. In addition, being aware of, and being fully informed about screening, male partner support and community involvement in screening needs assessment, planning, implementation and evaluation of screening programmes were factors that facilitated screening.

11.3 Conclusions

Key findings from this study suggest that women in Gwanda district have inadequate knowledge on cervical cancer and screening and their utilisation of VIAC services is low, although their attitudes towards screening are encouraging. Women with favourable physical access and enabling socio-demographic characteristics that place them at a better advantage have a higher predisposition to screening. Major barriers to screening from both service seekers and providers' perspectives are seen as women's limited knowledge on screening largely influenced by their religious and socio-cultural beliefs, and poor access to screening services. Barriers related to the health system are largely a result of inadequate funding of the VIAC programme that impacts the availability of resources required to implement it in an efficient way. Women's willingness to be screened needs to be backed up with appropriate resources to enhance the service's uptake.

In conclusion, all the five study objectives articulated in Chapter One were adequately addressed and the research questions answered. The recommendations provided are informed by empirical evidence that if successfully applied, could lead to the desired national level of VIAC screening rates and contribute to the elimination of cervical cancer as a public health concern by 2030.

11.4 Strengths and limitations

11.4.1 Strengths

This dissertation employed a mixed-method approach that quantified the knowledge levels and barriers to cervical cancer screening among women in the Zimbabwean district of Gwanda. Further to that, qualitative methods that actively engaged participants to elaborate on key issues provided a detailed and deeper understanding of the quantitative survey results. In addition, the study included both the recipients and providers of screening as participants to enhance and validate the findings. This provided room for a rich description of the collected data which promoted an in-depth comprehension of the subject at hand. Finally,

this study was guided by the SEM, an important framework used to explain the influence of the environment on the way individuals respond to stimuli (2), which in our case was 'cervical cancer screening'. Application of this framework adopted from Kaufman et al. (3), enabled capturing and accounting for the barriers that need to be addressed, and facilitators to screening that need to be supported. The framework additionally provided the basis for conceptualising the implications of this study. This dissertation's key strength was developing a theoretical framework that can explain barriers to screening better and assist in developing strategies that could minimise hindrances to screening.

11.4.2 Limitations

The study has some limitations. Firstly, only women aged 25-50 years were included as participants. A large cohort of younger and older women who are screening-eligible was excluded. The unique barriers to screening faced by this group which could especially be prevalent at the interpersonal and community levels of influence were not captured. Barriers that could have been observed if this sub-group had been included could thus have been under-estimated. Secondly, Policy makers at the Ministry of Health and Child Care and implementing Partners were not included in the study due to financial and time constraints. Valuable information that could have helped better understand the barriers to screening at the policy level would have been obtained to facilitate a more contextualised direction for future research. Likewise, data were also not collected directly from male partners and community leaders as important stakeholders. Thirdly, the quantitative data analyses in Chapters Five and Six were not disaggregated according to the residential areas. This resulted in a general depiction of barriers not specific to residential areas, and these could differ. Follow through qualitative methods in Chapters Eight and Nine, however, counteracted this limitation. Lastly, the collection of qualitative data was delayed by 11 months due to the COVID-19 pandemic which necessitated inter-province travel restrictions to be applied. Hence, knowledge levels could have increased over time and barriers overestimated. What is more, only the provincial hospital provided screening services when quantitative data was collected. Yet, during qualitative data collection, the urban health facility had also started to provide screening services. This could have resulted in slight variations in responses between quantitative and qualitative data findings.

11.5 Implications and Future Research

11.5.1 Implications

In Zimbabwe, a gap exists between actual cervical cancer screening rates and the expected indicators on cervical cancer screening targets set in the country's prevention and control strategy. The uptake of screening is even lower among women with particular background characteristics such as rural residency, low educational attainment and unemployment. This has important implications for addressing barriers to screening. The SEM described in Chapter 2, Section 2.3.4 clarified that the environment presents factors that can impede or facilitate an individual's utilisation of health promotion interventions. The study findings presented in Chapters Five to Nine have confirmed the paramount contribution of inadequate knowledge on cervical cancer screening, lack of accessible screening services and socio-cultural barriers in hindering

screening uptake. These stated barriers at the individual, interpersonal, community, health system and structural levels of influence reflect areas that policy makers and programme managers need to focus on to improve screening rates. Since it may be impossible or challenging to modify an individual's background characteristics, more focus should be applied to those factors that have the potential to be addressed directly to improve screening uptake.

Initiatives to improve women and health providers' knowledge of the disease and the purpose of screening should be employed. Notwithstanding the awareness initiatives in place, information imparted to communities may not be sufficient to create full understanding on cervical cancer and screening. Interventions to improve the already existing knowledge need to be intensified. Continued delivery of targeted and comprehensive health education relevant to the rural, mine and urban settings on the benefits, timing and procedures for VIAC screening is recommended to dispel the fears and misconceptions associated with screening incorporating the already existing strengths. This could include innovative information dissemination strategies such as community health meetings, use of social media, visual aids and individual educational sessions by VCWs as suggested by participants to improve better understanding and acceptance of screening. Most importantly, providing VIAC screening and treatment services at all health facilities where women normally access health services could eliminate the physical barriers to access the service.

A community-centered approach for information dissemination on cervical cancer was seen as appropriate for breaking cultural and religious barriers that hinder the uptake of screening. Positive change in health-seeking behaviours has been observed in other community and SRH programmes that incorporated community involvement and male participation (4,5). Programme coordinators should consider strengthening this proven approach for improved outcomes in the uptake of screening.

Lack of coordination between traditional and medical methods of managing cervical cancer prevention and control has implications for policy makers. According to Mposhi et al (6), 80% of Zimbabwe's population relies on traditional herbal therapies. Indeed, socio-cultural and religious practices came out as a strong factor contributing to low attendance for cervical cancer screening in this study. Most women are still grounded on herbal medicines' historical use as primary treatment and possible prevention of cancer (7). Active involvement of traditional healers and spiritualists in designing and implementing cervical cancer screening programmes could aid the accurate delivery of indigenous knowledge. Recognition of indigenous knowledge has been shown to improve acceptance of health promotion and disease prevention activities (7). This study strongly recommends integrating indigenous and medical knowledge in the prevention and control of cervical cancer programmes.

The user-unfriendly screening method involving intimate pelvic procedures may have implications for other SRH programmes. Comparable to cervical cancer screening, IUCD insertion also involves pelvic examination that is perceived as intimate and uncomfortable. Consequently, related barriers identified for cervical cancer screening may also apply to some family planning methods. This calls for culture-sensitive education on the importance of these SRH initiatives.

Finally, the COVID-19 pandemic may indirectly reverse the gains that have been made on efforts to increase the uptake of screening (8). Policy makers and programme coordinators may need to consider fully restoring the programme using means sensitive to both women and service provider's safety in order not to lose the momentum for screening highlighted in Chapter Nine.

11.5.2 Areas for future research

Findings from Chapters Five and Seven indicate that the current community education strategies on cervical cancer and screening may not be as effective at increasing knowledge on screening as they do at raising awareness around cervical cancer prevention and treatment as advocated in the 2016-2020 ZCCPCS. Future studies should qualitatively review the efficacy of the current awareness creation strategies to develop more relevant and effective strategies for increasing the knowledge levels on cervical cancer and screening. Such studies would provide an essential addition to Zimbabwe's literature, especially considering the on-going awareness campaigns highlighted in Chapters Five and Nine.

Granted the complexity and interrelatedness of the factors that determine the utilisation of cervical cancer screening services, it is important to ascertain the screening barriers from all important stakeholders in the VIAC programme at the four levels of influence following the applied SEM. Findings would provide a comprehensive picture of the problem for a more holistic approach in tackling the barriers. Accordingly, future studies should replicate this study with policy makers in the MOHCC, implementing Partners, men and community leaders as participants.

An important finding from Chapters Seven and Nine was that women were not comfortable with how the screening procedure is performed, which is one of the major reasons why screening rates are low. Growing evidence mainly from high income countries implies that self-sampling privacy encourages more women to get screened (9). In addition, HPV self-sampling overcomes the specialised workforce and infrastructure constraints (10), and thus provides a key opportunity to increase coverage in Gwanda district and Zimbabwe in general, especially in the context of the COVID-19 pandemic. The major limitation in using this screening method however is that it requires adequate follow up and management of screen positive results (10). Future studies should consider the feasibility and cost- effectiveness of adopting HPV self-sampling tests for Zimbabwe's screening programme with strategies for linkages to receipt of results and treatment for a positive result. This study also recommends a male communal cohort to test the highlighted barrier challenges for future studies.

Of note also in this study was the strong belief in the traditional ways of preventing or dealing with cancer that compels women to consult traditional healers and religious leaders before attending health services or the other way round. This study postulates that unless this issue is adequately addressed, screening rates may continue to be lower than expected even if all other barriers are addressed. Integration of indigenous and medical knowledge on the management of cervical cancer is advocated for future research. Other strategies to incorporate indigenous knowledge that have shown varying levels of success in health promotion activities

included organising multidisciplinary health workshops that focused on intercultural exchange and discussions on health policies (11).

This dissertation has demonstrated that barriers to cervical cancer screening exist in Gwanda district and give insight into the predominant barriers. Findings from these five studies (Chapters Five-Nine) have added a contribution to knowledge to better understand the barriers to screening for women in Gwanda that are actionable. It is anticipated that this study's findings will stimulate further research efforts to reduce gaps in screening with the long-term effect of decreasing morbidity and mortality from cervical cancer.

11.6 Recommendations for programme managers and policy makers

Based on the findings of this study, the following recommendations are proposed for policy makers and programme managers:

1. Integration of cervical cancer prevention and control into pre-service training of health workers to ensure acquisition of essential knowledge and skills for effective implementation of interventions in their areas of operation

2. End of term review of the 2016 – 2020 ZCCPCS to assess achievement of programme goals and targets. Strengths and weaknesses of the strategy identified should inform development of the next strategies for improved programme performance. This review is overdue.

3. Training of all nurses and VCWs to deliver key messages on cervical cancer and screening. Training should be extended to various community groups including traditional and religious leaders for integration of indigenous knowledge into cervical cancer screening programmes

4. Community education should be contextualised to address the needs of various community groups in the district namely; urban, rural and mining communities including males. Intensified culture sensitive educational programmes should focus more on attitudinal issues for women in the urban areas and mines, and general screening information for rural women.

5. Integration of cervical cancer screening to related services in the district such as the VMMC which is already performing well

6. Adoption of public-private partnerships with local companies to increase funding for the VIAC programme. This should ensure availability of cervical cancer screening services at all health facilities to increase screening coverage and improve women's access to screening, especially those in the rural and mining areas.

References

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2. Kilanowski JF. Breadth of the Socio-Ecological Model. J Agromedicine. 2017;22(4):295–7.

3. Kaufman MR, Cornish F, Zimmerman RS, Johnson BT. Health Behavior Change Models for HIV Prevention and AIDS Care: Practical Recommendations for a Multi-Level Approach. J Acquir Immune Defic Syndr. 2014; 66:250–8.

4. Fayoyin A. Male participation in promoting sexual and reproductive health agenda in Africa: Reflections on social change and democracy. J Dev Commun Stud. 2014;3(2):501–10.

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9. Yeh PT, Kennedy CE, De Vuyst H, Narasimhan M. Self-sampling for human papillomavirus (HPV) testing: A systematic review and meta-Analysis. BMJ Glob Heal. 2019;4.

10. Carrie H, Mackey TK, Laird SN. Integrating traditional indigenous medicine and western biomedicine into health systems: A review of Nicaraguan health policies and Miskitu health services. Int J Equity Health. 2015; 14:129.

APPENDICES

Appendix 1: Ethics Clearance Letter 1 (Stellenbosch University)

Health Research Ethics Committee (HREC)

Approval Notice

New Application

27/11/2018

Project ID :8568

HREC Reference #: S18/10/217

Title: Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

Dear Mrs Fennie Mantula,

The **Response to Stipulations** received on 27/11/2018 14:39 was reviewed by members of **Health Research Ethics Committee 2 (HREC 2)** via **expedited** review procedures on 27/11/2018 and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **This project has approval for 12 months from the date of this letter.**

Please remember to use your **Project ID [8568]** on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review

Please note you can submit your progress report through the online ethics application process, available at: Links Application Form Direct Link and the application should be submitted to the HREC before the year has expired. Please see *Forms and Instructions* on our HREC website (www.sun.ac.za/healthresearchethics) for guidance on how to submit a progress report.

The HREC will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility, permission must still be obtained from the relevant authorities (Western Cape Departement of Health and/or City Health) to conduct the research as stated in the protocol. Please consult the Western Cape Government website for access to the online Health Research Approval Process, see: https://www.westerncape.gov.za/general-publication/health-research-approval-process. Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

We wish you the best as you conduct your research.

For standard HREC forms and instructions, please visit: Forms and Instructions on our HREC website https://applyethics.sun.ac.za/ProjectView/Index/8568

If you have any questions or need further assistance, please contact the HREC office at 021 938 9677.

Yours sincerely,

Francis Masiye,

HREC Coordinator,

Health Research Ethics Committee 2 (HREC2).

National Health Research Ethics Council (NHREC) Registration Number:

REC-130408-012 (HREC1)·REC-230208-010 (HREC2)

Appendix 2: Ethics Clearance Letter 2 (Stellenbosch University) (Re-application as a result of Covid-19 delays)

UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Approval Notice

New Application

22/01/2021

Project ID: 18809

HREC Reference No: S20/09/259 (PhD)

Project Title: Barriers to cervical cancer screening in Gwanda District, Zimbabwe: A mixed method analysis (2)

Dear Mrs Fennie Mantula

The **Response to Modifications** received on 02/12/2020 17:34 was reviewed by members of **Health Research Ethics Committee** via **expedited** review procedures on 22/01/2021 and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Date: 22 January 2021

Protocol Expiry Date: 21 January 2022

Please remember to use your Project ID 18809 and Ethics Reference Number S20/09/259 (PhD) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review

Translation of the informed consent document(s) to the language(s) applicable to your study participants should now be submitted to the HREC.

Please note you can submit your progress report through the online ethics application process, available at: Links Application Form Direct Link and the application should be submitted to the HREC before the year has expired. Please see *Forms and Instructions* on our HREC website (www.sun.ac.za/healthresearchethics) for guidance on how to submit a progress report.

The HREC will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Please note that for studies involving the use of questionnaires, the final copy should be uploaded on Infonetica.

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility, permission must still be obtained from the relevant authorities (Western Cape Departement of Health and/or City Health) to conduct the research as stated in the protocol. Please consult the Western Cape Government website for access to the online Health Research Approval Process, see: https://www.westerncape.gov.za/general-publication/health-research-approval-process. Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

We wish you the best as you conduct your research.

For standard HREC forms and instructions, please visit: Forms and Instructions on our HREC website https://applyethics.sun.ac.za/ProjectView/Index/18809

If you have any questions or need further assistance, please contact the HREC office at 021 938 9677.

Yours sincerely,

Mrs. Brightness Nxumalo
HREC 2 Coordinator

National Health Research Ethics Council (NHREC) Registration Number:

REC-130408-012 (HREC1)●REC-230208-010 (HREC2)

Appendix 3: Ethics Clearance Letter (Medical Research Council of Zimbabwe)

Telephone: 791792/791193
Telefax: (263) - 242 - 790715
E-mail: mrcz@mrcz.org.zw
Website: http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazowe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL

REF: MRCZ/A/2426   22 March 2019

Fennie Mantula
60 Windemere Road
Morningside
Bulawayo

RE: - Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to continue conducting the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-
1. Completed MRCZ 101 new application form
2. Study protocol Version 2.0 dated 8 March 2019
3. Survey ICF version 2.0 dated 8 March 2019 (English and Ndebele)
4. Key informants' interview ICFs Version 2.0 dated 8 March 2019 (English and Ndebele)
5. Focus group discussion ICF Version 1.0 dated 8 March 2019 (English and Ndebele)
6. Researcher administered questionnaires Version 2.0 dated 8 March 2019 (English and Ndebele)
7. Focus group discussion guides Version 2.0 dated 8 March 2019 (English and Ndebele)
8. Key informant interview guides Version 2.0 dated 8 March 2019 (English and Ndebele)

- **APPROVAL NUMBER**   : MRCZ/A/2426

This number should be used on all correspondence, consent forms and documents as appropriate.
- **TYPE OF MEETING**   : FULL BOARD
- **MEETING DATE**   : 28 February 2019
- **APPROVAL DATE**   : 22 March 2019
- **EXPIRATION DATE**   : 21 March 2020

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING**: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS**: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw
  Other
  - Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
  - You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.
  - In addition to this approval, all clinical trials involving drugs, devices and biologics (including other studies focusing on registered drugs) require approval of Medicines Control Authority of Zimbabwe (MCAZ) before commencement

Yours Faithfully

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2019 -03- 2 2
APPROVED
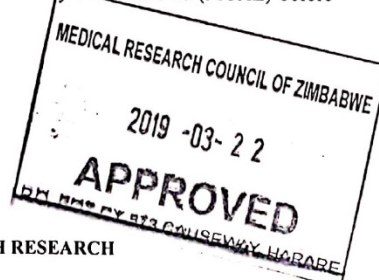
PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH

Appendix 4: Zimbabwe Ministry of Health and Child Care approval letter

Telephone: +263-4-798620

All correspondence should be addressed to the Secretary for Health and Child Care

ZIMBABWE

Reference:
Ministry of Health and Child Care
P O Box CY1122
Causeway
HARARE

23 January 2020

Ms F Mantula
60 Windermere Road
Morningside
Bulawayo
Zimbabwe

Dear Ms Mantula

RE: Application for permission to conduct a study titled: "Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis"

Your letter dated 23 September 2019 refers.

It is noted that you applied for permission to access 10 electoral wards and 10 health facilities in Gwanda district to conduct a study titled "**Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis**" It is also noted that the Provincial Medical Director-Matabeleland South, District Medical Director-Gwanda have no objection to the implementation of your study in Gwanda district. You have also obtained Medical Research Council of Zimbabwe ethical approval.

Your applications is approved but please note that you may be requested by the Secretary for Health to share your findings with MoHCC in the form of presentation or written report during the course or on completion of the study.

Regards.

Dr. A. Mahomva
SECRETARY FOR HEALTH AND CHILD CARE

27 JAN 2020

P.O. BOX CY 1122, CAUSEWAY
ZIMBABWE

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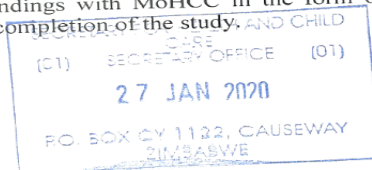
Appendix 5: Provincial Medical Directorate Matabeleland South Province Approval

Telephone: +263 284 24590

Email: pmdmatsouth@gmail.com

ZIMBABWE

MINISTRY OF HEALTH AND CHILD CAR
MATABELELAND SOUTH PROVINCE
First Floor, New Govt. Complex
Third Avenue
P O Box 39
Gwanda
Zimbabwe

03 April 2018

TO WHOM IT MAY CONCERN

RE: **REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY IN GWANDA DISTRICT**

The Provincial Medical Director Matabeleland South has no objection to Fennie Mantula conducting her research titled: **Barriers to Cervical Cancer Screening in Gwanda District, Zimbabwe in Gwanda District.** This is subject to approval by an approved ethical body and MRCZ.

PROVINCIAL MEDICAL DIRECTOR
MATABELELAND SOUTH
0 3 APR 2018
1st FLOOR NEW GVT. COMPLEX
3rd AVENUE
TEL 0284-24590

DR R CHIKODZORE
PROVINCIAL MEDICAL DIRECTOR – MAT SOUTH

Appendix 6: Gwanda District Medical Office Approval Letter

MINISTRY OF HEALTH AND CHILD CARE
GWANDA DISTRICT MEDICAL OFFICES
First Floor, New Government Complex
Third Avenue
P.O. Box 39
Gwanda
Zimbabwe

ZIMBABWE

Telephone: +263 8428 24008

dmogwandadhe@gmail.com

06 May 2019

TO WHOM IT MAY CONCERN,

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY IN GWANDA DISTRICT

This letter serves to confirm that a request was received through the Provincial Medical Director. The District Medical Officer Gwanda District has no objection to Fennie Mantula conducting her research titled: **Barriers to Cervical Cancer Screening in Gwanda District, Zimbabwe**. All her other approval documents with relevant bodies are in place.

The study will be conducted in 10 wards, and these are Wards 1, 13, 14, 15, 20, 21 and 23 for Rural and Wards 5, 8 and 9 for Urban.

DR A. S. THAKATAKA
A/DISTRICT MEDICAL OFFICER -GWANDA DISTRICT

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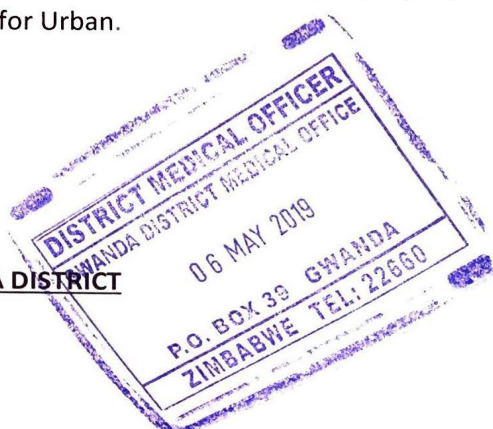
Appendix 7: Municipality of Gwanda Approval Letter

MUNICIPALITY ⚙ OF GWANDA

P.O. Box 70
GWANDA
ZIMBABWE

TEL: 22240/22278/22206
FAX: 22722
E-MAIL: gwandatownclerk@gmail.com

All correspondence to be addressed to the Town Clerk

REF: Adm/24

22 May 2019

Ms Fennie Mantula
Ministry of Health and Child Care
P.O. Box 39
GWANDA

Dear Madam

REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH

With reference to your letter in the above connection, please be advised that you have been granted permission to carry out the research on **"Barriers to Cervical Cancer Screening in Gwanda District, Zimbabwe"**.

Please liaise with the Sister In Charge, Phakama Clinic under the Chamber Secretary's Department regarding your research

Council wishes you all the best in your research.

Yours faithfully

P. NKALA
TOWN CLERK

PN/sm

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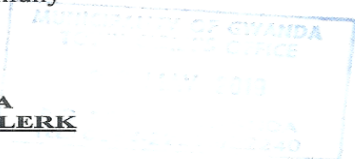
Appendix 8: Gwanda Rural District Council Approval Letter

GWANDA RURAL   **DISTRICT COUNCIL**

Fax2 No. + 263 284 23102

P O BOX 59
GWANDA
ZIMBABWE

Telephone: +263 284 22312 / 22369
E-mail: *grdc@iwayafrica.co.zw*
All Correspondence to be addressed to
The Chief Executive Officer
REF: XC/135/36

16 May 2019

TO WHOM IT MAY CONCERN

RE: APPROVAL TO CONDUCT EDUCATIONAL RESEARCH AND LETTER OF INTRODUCTION: FENNIE MANTULA: I.D NO. 08-273898 Y 21
The above subject matter is relevant.

May you be notified that Gwanda Rural District Council, a local authority established under the auspices and provisions of the Rural District Council Act Chapter 29:13 has duly allowed the above mentioned individual to carry out her educational endeavours. It is buttressed and emphasized that the attained information or data will solely be used for educational purposes while her opinions are as per individual perception, Council will not be responsible for any circumstantial misdeeds. While she conducts her research proper educational/academic ethics should be adhered to and we believe by granting such Council is contributing relevantly to the country's manpower development. Her findings or feedback will be most welcome to our data bases and decision making input. Fennie Mantula (22471936) is an employee of National University of Science and Technology and current PhD student at Stellenbosch University in South Africa and her topical research subject is '*Barriers to cervical cancer screening in Gwanda district, Zimbabwe*'.
We look forward to your profound assistance while wishing her all the best success in her studies and future endeavours.

Kind regards

....
K. Sithole
Executive Officer Administration and Human Resources

0 6 JUN 2019

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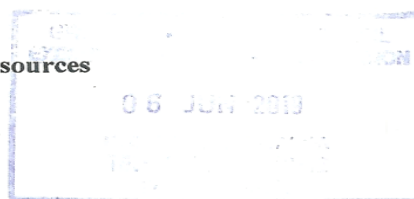
Appendix 9: Survey Informed Consent Form – English Version

Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

Adult Informed Consent Form- Version 2.0   Date: 8 March 2019

Principal Investigator   :   Fennie Mantula

Phone number   :   +263 773738146

Project Title   : Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

What you should know about this research study:

We give you this consent form so that you may read about the purpose, risks and benefits of this research study.

The main goal of research studies is to gain knowledge that may help future patients.

We cannot promise that this research will benefit you directly

You have the right to refuse to take part or agree to take part now and change your mind later.

Whatever you decide will not affect your regular care at the health facility.

Please review this consent form carefully. Ask any questions before you make a decision.

Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study on the **Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis**. Previously conducted studies in this country have shown that very few women are using screening services for cervical cancer and many only discover that they have the disease when it is too late to do anything about it. The purpose of the study is to learn about your knowledge, beliefs and behaviours related to cervical cancer screening.

268

We also wish to identify if there are any difficulties women face in accessing screening. It is hoped that the findings of this study will assist in developing means to reduce the barriers and result in increased uptake of cervical cancer screening.

You were selected as a possible participant in this study because as a female who is/ has been sexually active and exposed to the Human Papillomavirus (HPV), you are at risk of developing cervical cancer. HPV is the most common viral infection of the reproductive tract and most sexually active men and women will get infected at some point in their lives. While infections usually clear up within a few months, a small proportion of infections with certain types of HPV can persist and progress to cervical cancer. Approximately six hundred and twenty-eight women from this district will participate in the study.

PROCEDURES AND DURATION

This study does not offer treatment or any extra tests. If you decide to participate in this study, a researcher who will come to your home will ask you thirty-nine questions about yourself, your knowledge on cervical cancer and screening, whether you have been screened for cervical cancer, and what you think could be the reasons that prevent women from utilising cervical cancer screening services. You are free not to answer any question you are not comfortable with. There will be no procedures involved in the study, no standard treatment procedures nor any experimental procedures. Depending on the answers I get from you, the questions will take between thirty and forty-five minutes to answer. You may be invited again after a period of about one month to participate in a focus group discussion with about six to nine women from the same electoral ward as yours. Your Village Community Worker will advise you of the date, time and venue for the discussion if you will be selected. The focus group discussions should take about one hour to one and a half hours.

RISKS AND DISCOMFORTS

There are no foreseeable risks of injury or inconveniences which may arise from participating in this study as no form of treatment is involved. All that will be required of you is to answer questions that will be asked. However, emotional trauma may occur especially if you have a relative or acquaintance suffering from cervical cancer, or who died of cervical cancer. Should such a situation arise, you will be excused from the discussion and referred to the health facility for professional care.

BENEFITS AND/OR COMPENSATION

There are no direct benefits you will get by participating in the study. You will benefit from the study in that the results may be used to improve the delivery of cervical cancer screening services in the district which will result in more women accessing screening and fewer women dying from cervical cancer. You will not be paid to join this study.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document, we plan to disclose the results of the study to the Provincial Medical Directorate of Matabeleland South province and the Gwanda Provincial Hospital executive team for possible implementation of improvements in the delivery of cervical cancer screening services if need be. No information obtained in this study can be identified with you.

COSTS

There are no costs you will meet by participating in the study.

IN THE EVENT OF INJURY

No injuries are anticipated in this study as it only involves answering questions.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate, your decision will not affect your future relations with the researcher, your local primary health facility, and Gwanda Provincial Hospital and its personnel. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty. You must continue to visit your clinic for care and treatment even if you join the study.

SIGNATURE PAGE

Protocol Version Number: 2.0   Date: 8 March 2019

OFFER TO ANSWER QUESTIONS

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all questions answered and have decided to participate.

Name   of   Research   Participant   (please print)...Date……………………………

Signature of Participant

……..…………………………………………....................Time………………………..

Name of staff obtaining consent……………………………………Signature……………………..Date…………….

YOU WILL BE OFFERED A COPY OF THIS CONSENT FORM TO KEEP.

If you have any questions concerning this study or consent form beyond those answered by the investigator; this includes questions about the research, your rights as a research participant or research related injuries, or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe (MRCZ) on telephone (04)791792 or (04)791193 and cell phone line 0784 956 128. The MRCZ Offices are located at the National Institute of Health Research premises at Corner Josiah Tongogara and Mazowe Avenue in Harare.

Appendix 10: Survey Informed Consent Form – Ndebele Version

Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

Isivumelwano labaphatheka kuchwayisiso lwabazaphendula imibuzo **-** Ugwalo 2.0

Usuku : 8 Mbimbitho 2019

Umchwayisisi omkhulu : Fennie Mantula

Inombolo zocingo : +263 773738146

Isihloko sochwayisiso : Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.

Okumele ukwazi ngalolu chwayisiso:

Sikunika lesi sivumelwano ukuba ubale ngenjongo yalolu chwayisiso, ngengozi nxa ingabakhona ongahlangana layo nxa ube yingxenye, kanye lokuphathiseka ongakuthola ngokuba yi ngxenye yaloluchwayisiso.

Injongo kuzo zonke izichwayisiso yikuthola ulwazi olungaphathisa ezinye iziguli kwelizayo.

Asingeke sithembise ukuba lolu chwayisiso luzakuphathisa wena ngokwakho ngqo.

Ulelungelo lokwala ukuphatheka kulolu chwayisiso, kumbe ukuvuma khathesi kodwa uguqule umkhumbulo wakho sokuphambili.

Isinqumo ozasenza asisoze siphambanise indlela ozaphathwa ngayo nxa udinga uncedo lwezempilakahle.

272

Balisisa uzwisise kakuhle konke okubhalwe lapha, njalo ubuze konke ofisa ukukuzwisisa ungakenzi isinqumo.

Ukuba yingxenye yalolu chwayisiso akubanjwa ngamandla.

INJONGO

Ucelwa ukuba yingxenye yochwayisiso olukhangela **Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.** Kwasebechwayisise ngaphambilini kulelilizwe, kuvela ukuba balutshwana abesifazana abaphatheka kuhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane. Abanengi bananzelela ukuba lumkhuhlane balawo ngesikhathi usuhlasele kakhulu, njalo sokungaselalutho olungenziwa ukuba bancedakale. Injongo yalolu chwayisiso yikuba sazi ngolwazi, inkolo, kanye lalokho okwenzayo mayelana lokuhlolwa. Sifisa lokudingisisa ngokuthi kambe kungaba lobunzima yini abesifazana abahlangana lalo ekufinyeleleni uhlelo lokuhlolwa. Sithemba ukuba impumela yaloluchwayisiso izancedisa ukwehlisa ubunzima lobo, besekusenza ukuba abesifazana abanengi bakukhwabithe ukuhlolwa. Lokhu kuzancedisa ekudingeni amasu afaneleyo okuphungula imigoqo enqabela ukufinyelela uhlelo lokuhlolwa esibhedlela esikhulu se Gwanda, besekunceda njalo ekwehliseni inani labesifazana abangahlaselwa ngumkhuhlane we mvukuzane yomlomo wesibeletho. Ukhethiwe ukuba yingxenye yalabo abazaphatheka kulolu chwayisiso sikhangele ukuthi njengomuntu wesifazana oya kumbe oseke waya emacansini, usengozini yokuwuthola umkhuhlane lo obangwa ligciwane elithiwa yi Human Papillomavirus (HPV).

I HPV ligciwane elijayeleke kakhulu ekuhlaseleni izitho eziphathelane lenzalo, njalo phose bonke abesilisa labesifazana liyabahlasela ngesinye isikhathi ezimpilweni zabo. Lanxa esikhathini esinengi liphela lodwa ngemva kwezinyanga ezimbalwa, kulamathuba amalutshwana lapho nxa umuntu ethe wahlaselwa ngezinye inhlobo ze HPV, kuqhubekele phambili umuntu acine eselemvukuzane

Phose abesifazana abangaba ngamakhulu ayisithupha lamatshumi amabili lasitshiyagalo mbili kulesi siqinti bazaphatheka kulolu chwayisiso.

INDLELA OKUZAQHUTSHWA NGAYO

Akusoze kube lokwelatshwa kuloluchwayisiso njalo Akula kunye ukuhlolwa okuzakwenziwa. Nxa ukhetha ukuphatheka ku lolu chwayisiso, kuzaba lomchwayisisi ozakwethekela lapho ohlala khona akubuze imibuzo engamatshumi amathathu lanye ephathelane lawe, ulwazi olalo ngomkhuhlane wemvukuzane yomlomo wesibeletho kanye lokuhlolwa kwakhona, ukuthi wena usuke wahlolwa yini, lezizatho ocabangela ukuthi zibangela abesifazana ukuba bangafinyeleli uhlelo lokuhlolwa. Ukhululekile ukungaphenduli imibuzo engakuphathi kahle. Akula kuhlolwa kumbe ukwelatshwa

273

okuzenziwa kululuchwayisiso. Kusiya ngendlela ozaphendula ngayo, kungathatha isikhathi esingaba yimizuzu engamatshumi amathathu kusiya kwe ngamatshumi amane lanhlanu. Kungenzeka ucelwe njalo ngemva kwesikhathi esingaba yinyanga ukuba uphatheke kungxoxo elesihloko esifana lalesi, ezagoqela abesifazana bakusonesi sigaba abangafika itshumi. Nxa kube njalo, okhangelane lezempilakahle esigabeni senu uyabe ezakwazisa ilanga, isikhathi, kanye lendawo lapho ingxoxo leyo ezakwenzelwa khona. Lingxoxo iyabe ingathatha isikhathi esingaba lihola kusiya kuhola lengxenye.

INGOZI ENGABAKHONA

Akula ngozi kumbe ukuhlukumezeka komzimba okukhangelelwe ukuthi kuvele ngokuphatheka kulolu chwayisiso kalokhu kungelakuhlolwa kumbe ukwelapha okuzabakhona. Okudingekayo nje yikuba uphendule imibuzo ezabuzwa. Kodwa ke, kungenzeka ukuba kube lokuhlukumezeka ko moya ikakhulu nxa ulesihlobo kumbe omunye omaziyo olomkhuhlane esikhuluma ngawo, kumbe owafa ebulawa yilowo mkhuhlane. Nxa kungenzeka lokho, siyabe siza kucela ukuba ungasaqhubekeli phambili ukule ingxoxo, besesixhumana labezempilakahle ku klinika eseduze lawe ukuba uthole uncedo olufaneleyo.

INZUZO KUMBE IMBADALO

Akulanzunzo eqondana lawe nqgo ozayithola ngokuba yi ngxenye yalolu chwayisiso. Okungaba yinzuzo kuwe yikuba impendulo esizazithola kululuchwayisiso zingasetshenziswa ukungconozisa indlela uhlelo lokuhlolwa oluqhutshwa ngayo esiqintini okungenza abesifazana abanengi balufinyelele uhlelo, njalo kube labalutshwana abesifazana ababulawa ngumkhuhlane wemvukuzane yomlomo wesibeletho. Awusoze ubhadalwe ngokungena kululuchwayisiso.

UKUGCINEKA KUHLE KWAMAQINISO ESIZAWATHOLA KUCHWAYISISO

Nxa utshengisa ukulangathela kwakho ukuba yi ngxenye yalolu chwayisiso ngokufaka isicibitshelo sakho kululolugwalo, sihlose ukuba sazise abakhulu bezempilakahle ku nsinda ye Matabeleland South impumela yochwayisiso, kanye leziphathamandla zesibhedlela esikhulu se Gwanda ukwenzela ukuba nxa kulendingeko, bathathe amanyathelo angangconozisa ukuphathwa kohlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane. Akula ndaba zempumela yochwayisiso eziza hlanganiswa legama lakho.

INDLEKO

Akula ndleko ozabalazo ngokuphatheka kulolu chwayisiso.

NXA KUNGENZEKA ULIMALE

Akulakulimala okukhangelelweyo ngokuphatheka kuloluchwayisiso lokhu kuyabe kuphendulwa imibuzo nje.

UKUBA YINGXENYE YOCHWAYISISO KUNGELAKUBANJWA NGAMANDLA

Ukuba yi ngxenye yalolu chwayisiso kuyikufisa komuntu. Nxa ukhetha ukungaphatheki kilo, isinqumo sakho asisoze siphambanise ubudlelwano bakho labachwayisisi, iklinika othola kiyo usizo lwezempilakahle, kunye lesibhedlela esikhulu se Gwanda lezisebenzi zaso kwelakusasa. Nxa ukhetha ukuba yingxenye yo chwayisiso, ukhululekile ukuguqula inqgondo uphume kuchwayisiso kungela kuhlukuluzwa ozakwenziwa. Kumele uqhubeke ngokuya eklinika ukuthola uncedo lwezempilakahle lokwelatshwa nxa ungabe ukudinga lokho lanxa uyabe ungene kuloluhlelo.

IKHASI LESICIBITSHELO

Ugwalo: 2.0   Usuku: 8 Mbibitho 2019

ISICELO SOKUBA UBUZE IMIBUZO

Ungaka cibitsheli kuleli khasi, uyacelwa ukuba ubuze imibuzo ephathelane loba yini ehlangene lalolu chwayisiso ongabe ungakuzwisisi. Thatha isikhathi sonke osidingayo ukucabangisisa ngalokho.

UKUVUMA

Uthatha isinqumo sokuthi ube kumbe ungabi yingxenye yalolu chwayisiso. Isicibitshelo sakho siveza ukuba usubalile, kumbe usubalelwe wazwisisa konke okuphawuliweyo, njalo waphendulwa yonke imibuzo obulayo yikho usuthethe isinqumo sokuba yingxenye yalolu chwayisiso.

Ibizo lophathekayo (ngamabala

amakhulu)..Usuku…………………………..

Isicibitshelo sophathekayo

…………………………………………………………….Isikhathi………………………..

Ibizo lomchwayisisi othola imvumo

…………………………………………………….Isicibitshelo……………………Usuku………...

UZAPHIWA IKHASI LAKHO LESIVUMELWANO LESI UKUZE ULIGCINE

Nxa ulemibuzo mayelana lalolu chwayisiso kumbe isivumelwano engaphezu kwaleyo ephendulwe ngumchwayisisi; lokhu kugoqela imibuzo ephathelane lochwayisiso kumbe amalungelo akho njengo thatha ingxenye, amanyathelo azathathwa nxa kungenzeka ulimale ngokuba yi ngxenye yo chwayisiso, kumbe nxa ubona ungazange uphatheke kuhle ufisa ukukhuluma lomunye ongasilo lunga laba chwayisisi, ukhululekile ukuthintana le Medical Research Council of Zimbabwe (MRCZ) kunombolo ezithi (04)791792 kumbe (04)791193 le nombolo zikamakhala ekhukhwini ezithi 0784 956 128. Amawofisi e MRCZ Offices atholakala e National Institute of Health Research ku Corner Josiah Tongogara lo Mazowe Avenue   e Harare.

276

Appendix 11: Focus Group Discussion Informed Consent Form – English Version

Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

Informed Consent Form for Focus Group Discussions   Version 2.0

Date   :   9 September 2020

Principal Investigator   :   Fennie Mantula

Phone numbers   :   +263 773738146

Project Title   :   Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

What you should know about this research study:

We give you this consent form so that you may read about the purpose, risks, and benefits of this research study.

The main goal of research studies is to gain knowledge that may help future patients.

We cannot promise that this research will benefit you directly

You have the right to refuse to take part or agree to take part now and change your mind later.

Whatever you decide will not affect your regular care at the health facility.

Please review this consent form carefully. Ask any questions before you make a decision.

Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study on the **Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis**. The purpose of the study is to learn more about your knowledge and beliefs on cervical cancer and the practice of cervical cancer screening, and to identify difficulties which women in the district face in accessing screening services. Your opinion is very important to us because it will help find ways to address those difficulties to improve the cervical cancer screening programme in the future. You were selected as a possible participant in this study because we wish to discuss further on the information you gave when answering the questionnaire so that we get a better understanding on important issues related to the screening programme. Approximately nine other women from your electoral ward will be requested to join you in the discussion, and about ten discussions will be conducted in this district.

PROCEDURES AND DURATION

If you decide to participate in this study, I will engage you in a group discussion related to issues dealing with cervical cancer and screening, and what you think could be the reasons that prevent women from utilising cervical cancer screening services. You are free not to discuss any issues you are not comfortable with. There will be no procedures involved in the study, no standard treatment procedures nor any experimental procedures. Depending on the information I get, the discussion should take about one hour. I will use an audio recorder to capture the responses from the group if you allow me so that I do not lose any important information that will come up during the discussion. Whatever you say will not be linked to your name so feel free to express your honest opinion. After the discussion, I will listen to the recording and write down all the information which was recorded. The recordings will be destroyed at the end of the study. The recording will not be used for any other purpose other than this study and will not be accessible to anyone other than the people involved in this study. You can verify your comments and responses after the recording if you wish.

RISKS AND DISCOMFORTS

There are no foreseeable risks of injury or inconveniences which may arise from participating in this study as no form of treatment is involved. All that will be required of you is to answer questions that will be asked. However, emotional trauma may occur especially if you have a relative or acquaintance suffering from cervical cancer, or who died of cervical cancer. Should such a situation arise, you will be excused from the discussion and referred to the health facility for professional care. Since we are meeting during the COVID-19 pandemic, there is a risk of you acquiring COVID-19 from another participant who may be infected, or from touching a surface such as a table on which the recorder will be placed if it is contaminated. All necessary precautions will be taken before, during and after

278

the discussion to minimise transmission of the disease. Temperature checks of all participants will be done before the discussion starts and all participants will be screened and anyone with flu like symptoms will be asked not to participate in order to protect others and minimise the risk of transmission. Medical masks will be provided for all participants and hands sanitised at the beginning and at the end of the discussion. A minimum physical distance of one meter from other participants will be maintained to break the chain of transmission. In addition, you will also be provided with a pen for signing the informed consent form so that you will not need to share it with anyone. All surfaces in the meeting place will be disinfected prior to the meeting. The discussion will also be held in a well-ventilated place.

BENEFITS AND/OR COMPENSATION

There are no direct benefits you will get by participating in the study. You will benefit from the study in that the results may be used to improve the delivery of cervical cancer screening services in the district which will result in more women accessing screening, and fewer women dying from cervical cancer. You will be given an amount of $1USD equivalent as reimbursement for transport costs to the venue, and for refreshments.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document, we plan to disclose the results of the study to the Provincial Medical Directorate of Matabeleland South province, Gwanda Provincial Hospital executive team, Municipality of Gwanda and Gwanda Rural District Council for possible implementation of improvements in the delivery of cervical cancer screening services if need be. No information obtained in this study can be identified with you.

COSTS

There are no costs you will meet by participating in the study.

IN THE EVENT OF INJURY

No injuries are anticipated in this study as it only involves answering questions. In the event that you feel unwell within two weeks of this focus group discussion, you are advised to communicate with your health facility who will advise you on what to do and also monitor your illness. They will communicate the outcome of your illness to the principal investigator.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate, your decision will not affect your future relations with the researcher, your local primary health facility, and Gwanda Provincial Hospital and its personnel. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty. You must continue to visit your clinic for care and treatment even if you join the study.

SIGNATURE PAGE

Protocol Version Number: 3.0   Date: 9 September 2020

OFFER TO ANSWER QUESTIONS

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all questions answered and have decided to participate.

Name of Research Participant (please print)...Date…………………………….

Signature of Participant
…………………………………………....................Time………………………………

Name of staff obtaining consent…………………………………………Signature……………………Date………..……

STATEMENT OF CONSENT TO BE AUDIOTAPED

I understand that audio recordings will be taken during the study, please choose YES or NO by inserting your initials in the relevant box.

I agree to be audio recorded

Yes   ☐

No   ☐

Name of Participant………………………………………………………………………………….

Signature…………………………………………Date…………………………………………………

If you have any questions concerning this study or consent form beyond those answered by the investigator; this includes questions about the research, your rights as a research participant or research related injuries, or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe (MRCZ) on telephone (04)791792 or (04)791193 and cell phone line 0784 956 128. The MRCZ Offices are located at the National Institute of Health Research premises at Corner Josiah Tongogara and Mazowe Avenue in Harare.

Appendix 12: Focus Group Discussion Informed Consent Form – Ndebele Version

Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

Isivumelwano labaphatheka kungxoxo yochwayisiso belixuku **-** Ugwalo 3.0

Usuku   :   25 Zibandlela 2021

Umchwayisisi omkhulu   :   Fennie Mantula

Inombolo zocingo   :   +263 773738146

    Isihloko sochwayisiso   : Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.

Okumele ukwazi ngalolu chwayisiso:

Sikunika lesi sivumelwano ukuba ubale ngenjongo yalolu chwayisiso, ngengozi nxa ingabakhona ongahlangana layo nxa ube yingxenye, kanye lokuphathiseka ongakuthola ngokuba yi ngxenye yaloluchwayisiso.

Injongo kuzo zonke izichwayisiso yikuthola ulwazi olungaphathisa ezinye iziguli kwelizayo.

Asingeke sithembise ukuba lolu chwayisiso luzakuphathisa wena ngokwakho ngqo.

Ulelungelo lokwala ukuphatheka kulolu chwayisiso, kumbe ukuvuma khathesi kodwa uguqule umkhumbulo wakho sokuphambili.

Isinqumo ozasenza asisoze siphambanise indlela ozaphathwa ngayo nxa udinga uncedo lwezempilakahle.

Balisisa uzwisise kakuhle konke okubhalwe lapha, njalo ubuze konke ofisa ukukuzwisisa ungakenzi isinqumo.

Ukuba yingxenye yalolu chwayisiso akubanjwa ngamandla.

INJONGO

Ucelwa ukuthi ube yingxenye yochwayisiso olukhangela **Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.**

Injongo yalolu chwayisiso yikuba sazi ulwazi lenkolo yenu mayelana lo mkhuhlane wemvukuzane yomlomo wesibeletho, uhlelo lokuhlolwa, kanye lokunanzelela ubunzima abesifazana abangabe behlangana labo ekufinyeleleni lolu hlelo. Imibono yenu iqakatheke kakhulu kithi ngoba izasincedisa ukudinga indlela zokunqoba leyo migoqo. Lokho kunga ngconozisa indlela uhlelo olusebenza ngayo kwelizayo. Ukhethwe ukuba yingxenye yalabo abazaphatheka kulolu chwayisiso ngoba sifisa ukuzwisia ngokujulileyo owakuveza ngesikhathi uphendula imibuzo. Phose abanye abesifazana abangaba yisifica munwe munye abasuka kulindawo bazacelwa labo ukungena kuli ngxoxo kunye lawe, kantike kuzaba lengxoxo ezifanayo ezingaba litshumi kulesi siqinti.

INDLELA OKUZAQHUTSHWA NGAYO

Nxa ukhetha ukuphatheka ku lolu chwayisiso, ngizangena lawe kungxoxo yexuku lapho esizakhangela indaba eziphathelane lomkhuhlane wemvukuzane yomlomo wesibeletho kanye lokuhlolwa kwakhona, lalokho elikubona njengezizatho ezibangela abesifazana ukuba bangafinyeleli uhlelo lokuhlolwa. Ukhululekile ukuba uthule uma ungafisi ukuxoxa ngalokho okuyabe kukhulunywa ngakho. Lokho akusoze kwenze uhlukunyezwe noma ngayiphi indlela. Akula kuhlolwa kumbe ukwelatshwa okuzenziwa kuloluchwayisiso. Kusiya ngendlela engizathola ngayo ulwazi engiludingayo, ingxoxo yethu ingathatha isikhathi esingaba lihola. Ngizathatha amazwi ngesikhathi sixoxa ukwenzela ukuba ngingalahlekelwa ngokuqakathekileyo esiyabe sikhulume ngakho. Konke ozakukhuluma lapha akusoze kuhlanganiswe lebizo lakho kungakho ukhululeke ukukhuluma ngeqiniso lonke konke okucabangayo. Ngemva kwengxoxo, ngizalalela konke okuyabe kukhulunyiwe besengikubhala phansi ngendlela okuyabe kukhulunywe ngayo. Amazwi ayabe ethethwe azachithwa ngendlela langesikhathi esifaneleyo lapho uchwayisiso soluphelile. Esikutholileyo ekuxoxeni akusoze kusetshenziswe komunye umsebenzi onga phathelananga lalolu chwayisiso njalo akusoze kufinyelelwe ngomunye umuntu ngaphandle kwalabo abaku chwayisiso lolu. Ngemva kokuba sesiqedile ukuxoxa, ulelungelo lokuthi ulalele ebesikukhuluma ukuze ube lesiqiniselo sokuba yiwo ngempela amazwi owakhulumileyo.

INGOZI ENGABAKHONA

Akula ngozi kumbe ukuhlukumezeka komzimba okukhangelelweyo ngokuphatheka kulolu chwayisiso njengoba kungelakuhlolwa kumbe ukwelatshwa okuzabakhona. Okudingekayo nje yikuba uphendule imibuzo. Lanxa kunjalo, kungenzeka kube lokuhlukumezeka ko moya ikakhulu nxa ulesihlobo kumbe omunye omaziyo olomkhuhlane esikhuluma ngawo, kumbe owafa ebulawa yilo umkhuhlane. Kungenzeka lokho, uzacelwa ukuba ungasaqhubekeli phambili ngengxoxo, besesixhumana labezempilakahle ku klinika eseduze lawe ukuze uthole uncedo olufaneleyo. Kodwa ke, njengoba sihlangana ngesikhathi sobhubhane lwe COVID-19, amathuba okuba uthole lumkhuhlane komunye wabazaphatheka engxoxweni akhona. Ungawuthola njalo ngokuthinta itafula lapha umathathamazwi oyabe ebekwe khona nxa kuyikuthi igciwane le corona beselihlezi kuyo nxa ungasuka ubambe ubuso. Konke okuse mandleni kuzakwenziwa ukwehlisa amathuba okungadluliselani umkhuhlane. Ukutshisa komzimba kuzahlolwa ngaphambilini. Nxa umzimba ungatholakala utshisa okudlulisileyo kumbe ungezwa kuhle, uzaxwayiswa ukungaphatheki kungxoxo kodwa udluliselwe kwabezempilakahle ukuze uthole usizo. Uzanikezwa okokuvala umlomo lamakhala ucelwe njalo kuba ungakwehliseli esilevini ngesikhathi sokuxoxisana. Uzacelwa ukuba uhlanze izandla zakho ngomuthi ozawuphiwa ekuqaliseni lasekuphethheni kwengxoxo. Ngesikhathi sokuxoxisana, ukuhlala kuzalungiswa ngendlela yokuthi kusale isikhala esingaba yisilinganiso sengalo ezimbili phakathi kwabaphathekileyo kuchwayisiso. Phezu kwalokho, uzaphiwa usiba lokuloba ozalugcina ukuze ufake isicibitshelo sakho ungaluntshintshani labanye. Ukuxoxisana kunzenzelwa endaweni ebetha umoya. Konke lokhu kuyimizamo yokwephula amathuba okudluliselana i COVID-19.

INZUZO KUMBE IMBADALO

Akulanzunzo eqonde wena ozayithola ngokuba yi ngxenye yalolu chwayisiso. Okunganceda abanye yikuthi impendulo esizazithola kululuchwayisiso zingasetshenziswa ukungconozisa indlela uhlelo oluqhutshwa ngayo. Lokhu kungenza abesifazana abanengi balufinyelele uhlelo, njalo kube labalutshwana ababulawa yimvukuzane yomlomo wesibeletho. Uzaphiwa imali engaqathaniswa le $1USD ebuyisela imali ogade ngayo usiza kundawo yomhlangano, kanye lokuthi uthole okuncane okuya ethunjini.

UKUGCINEKA KUHLE KWAMAQINISO ESIZAWATHOLA KUCHWAYISISO

Nxa utshengisa ukulangathela kwakho ukuba yi ngxenye yalolu chwayisiso ngokufaka isicibitshelo sakho kulolugwalo, yazi ukuba siza kwazisa abakhulu bezempilakahle ku nsinda ye Matabeleland South impumela yochwayisiso, kanye leziphathamandla zesibhedlela esikhulu se Gwanda, ezedolobho le Gwanda kanye lezikhangele emaphandleni esiqinti se Gwanda. Lokhu kuyikwenzela

ukuthi nxa kulendingeko, iziphathamandla lezi zithathe amanyathelo angangconozisa ukuphathwa kohlelo. Izindaba eziphuma kulolu yochwayisiso aziyikuhlanganiswa legama lakho.

INDLEKO

Akula ndleko ozabalazo ngokuphatheka kulolu chwayisiso.

NXA KUNGENZEKA ULIMALE

Akukhangelelwanga ngozi yokulimala ngokuphatheka kululuchwayisiso njengoba kuyabe kuxoxwa nje. Kodwa ngenxa yomumo we COVID-19 esiphakathi kwawo, nxa kungenzeka uzizwe ungaphilanga kuhle emzimbeni kusiyafika emavikini amabili ngemva kokuhlangana kwethu, uxwayiswa ukuba uye eklinika eseduze lawe. Lapho uzakwaziswa ukuthi wenzeni njalo ukugula kwakho kuzalandelelwa. Abaphathi bekliniki bazakwazisa ophethe uchwayisiso lolu ngempumela yokugula kwakho.

UKUBA YINGXENYE YOCHWAYISISO KUNGELAKUBANJWA NGAMANDLA

Ukuba yi ngxenye yalolu chwayisiso kuyikuthanda komuntu. Nxa ukhetha ukungaphatheki kilo, isinqumo sakho asisoze siphambanise ubudlelwano bakho labachwayisisi kunye lalapho othola khona usizo lwezempilakahle. Nxa ukhetha ukuba yingxenye yo chwayisiso, ukhululekile ukuguqula inqgondo uphume kungela kuhlukuluzwa ozakwenziwa. Kumele uqhubeke ngokudinga usizo kanye lokwelatshwa kwabezempilakahle kungakhathalekile ukuba ubungene kulolu chwayisiso.

285

IKHASI LESICIBITSHELO

Ugwalo: 3.0   Usuku: 25 Zibandlela 2021

UCELO LOKUBA UBUZE IMIBUZO

Ungaka cibitsheli kuleli khasi, uyacelwa ukuba ubuze imibuzo ephathelane loba yini ehlangene lalolu chwayisiso ongabe ungakuzwisisi. Thatha isikhathi sonke osidingayo ukucabangisisa ngalokho.

UKUVUMA

Uthatha isinqumo sokuthi ube kumbe ungabi yingxenye yalolu chwayisiso. Isicibitshelo sakho siveza ukuba usubalile, kumbe usubalelwe wazwisisa konke okuphawuliweyo, njalo waphendulwa yonke imibuzo obulayo yikho usuthethe isinqumo sokuphatheka ku chwayisiso.

Ibizo lophathekayo (ngamabala amakhulu)..Usuku……………………….

Isicibitshelo sophathekayo …………………………………………………………Isikhathi……………………

Ibizo lomchwayisisi othola imvumo…………………………………………….Isicibitshelo……………………Usuku………

UMUGCA WOKUVUMA UKUTHATHWA KWAMAZWI

Ngiyazwisisa ukuba umathathamazwi uzasetshenziswa ngesikhathi sokuqhuba uchwayisiso. Khetha phakathi kuka YE kumbe u HATSHI ngokufaka ibala okuqala lebizo lelesibongo sakho ebhokisini lempendulo oyikhethayo.

Ye

Hatshi

UZAPHIWA IKHASI LAKHO LESIVUMELWANO LESI UKUZE ULIGCINE

Nxa ulemibuzo mayelana lalolu chwayisiso kumbe isivumelwano engaphezu kwaleyo ephendulwe ngumchwayisisi; lokhu kugoqela imibuzo ephathelane lochwayisiso kumbe amalungelo akho njengo thatha ingxenye, amanyathelo azathathwa nxa kungenzeka ulimale ngokuba yi ngxenye yo chwayisiso, kumbe nxa ungaphathwanga kuhle ufisa ukukhuluma lomunye ongasilo lunga laba chwayisisi, ukhululekile ukuthintana le Medical Research Council of Zimbabwe (MRCZ) kunombolo ezithi (04)791792 kumbe (04)791193, le nombolo zikamakhalekhukhwini ezithi 0784 956 128. Amawofisi e MRCZ atholakala e National Institute of Health Research ku Corner Josiah Tongogara lo Mazowe Avenue, e Harare.

Appendix 13: In-depth Interview Informed Consent Form – English Version

UNIVERSITEIT
iYUNIVESITHI
STELLENBOSCH
UNIVERSITY

100
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Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

In-depth Interview Informed Consent Form - Version 4.0   Date: 30 November 2020

Principal Investigator: Fennie Mantula

Phone number: +263 773738146

Project Title: Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

What you should know about this research study:

We give you this consent form so that you may read about the purpose, risks, and benefits of this research study.

The main goal of research studies is to gain knowledge that may help future patients. We cannot promise that this research will benefit you directly. You have the right to refuse to take part or agree to take part now and change your mind later. Whatever you decide will not affect your future relationship with the researcher or the institution you are working for. Please review this consent form carefully. Ask any questions before you make a decision. Your participation is voluntary, and you are free to decline to participate.

PURPOSE

You are being asked to participate in a research study on **Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis**. The purpose of the study is to contribute towards the development of appropriate strategies for the setting, to reduce the barriers to cervical cancer screening in Gwanda Provincial Hospital and subsequently, the incidence of cervical cancer. You were selected as a possible participant in this study since you play a clinical, administrative, or

287

information dissemination role in the provision of screening services and possess expert opinions on the programme. About thirty-four persons with different expertise in cervical cancer screening will be interviewed in this district.

PROCEDURES AND DURATION

If you decide to participate in this study, I will ask for your views on issues related to cervical cancer screening in the district. You are free not to discuss any issues you are not comfortable with. Depending on your responses, the interview should take about thirty to forty-five minutes. I will use an audio recorder to capture your responses if you allow me so that I do not lose any important information that will come up during the session. All the information from the recorder will later be written down and examined alongside with information given by other participants to see what you consider as barriers to cervical cancer screening. The recording will not be used for any other purpose other than this study and will not be available to anyone besides the people involved in the study. At the end of the study, the recordings will be destroyed. You can verify your comments and responses after the recording before they can be included in the study if you like.

RISKS AND DISCOMFORTS

There are no foreseeable risks of injury or inconveniences which may arise from participating in this study as no form of treatment or screening is involved. All that will be required of you is to give your opinion on the issues that will be discussed. However, since this interview is taking place during the COVID-19 pandemic, there is a risk of you acquiring COVID-19 from the interviewer who may be infected, or from touching a surface such as the table on which the voice recorder will be placed, if it is contaminated. All necessary precautions will however be taken before, during and after the interview to minimise the risk of transmission of the virus between you and the interviewer. Although your temperature may have been checked when reporting for duty as part of your institutional procedures, routine screening will still be carried out. Your temperature will be rechecked, and you will be asked if you have any flu like symptoms. If your temperature is greater than 37.8^0 C or if you have flu like symptoms, you will not be interviewed, but will be advised to follow your institution's protocols for managing the situation. The table on which the voice recorder will be placed will be disinfected prior to the start of the interview. For good ventilation, the office windows and door will be kept open during the interview where possible. A medical face mask will be provided, and you are requested to keep it on, covering both your mouth and nose throughout the interview. You will also be asked to sanitise your hands at the beginning and at the end of the interview with the hand sanitiser that will be provided. A minimum physical distance of one meter between you and the interviewer will be maintained in the seating arrangement in order to break the chain of transmission. In addition,

you will also be provided with your own pen for signing the informed consent form so that you will not have to share it with the interviewer.

BENEFITS AND/OR COMPENSATION

There are no direct benefits you will get by participating in the study. You may benefit from the study in that the results may be used to improve the way cervical cancer screening services are provided in the district, which may make service delivery more efficient and effective for better programme outcomes.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document, the information that will be collected will be treated as confidential and protected. The findings of the study will be shared with the Provincial Medical Directorate of Matabeleland South province, Gwanda Provincial Hospital executive team, Municipality of Gwanda and Gwanda Rural District Council for possible implementation of strategies that could improve the delivery of cervical cancer screening services if indicated. No information obtained in this study will be identified with you.

COSTS

There are no costs you will incur by participating in the study.

IN THE EVENT OF INJURY

No injuries are anticipated from participation in this study as it only involves sharing information on the cervical cancer screening programme. Should you however feel unwell within two weeks of this interview, please inform the District Medical Officer who will advise you on what to do and keep surveillance on your condition. He will also report the outcome of your illness to the Principal investigator.

VOLUNTARY PARTICIPATION

Participating in this study is voluntary. If you decide not to participate, your decision will not affect your future relations with the researcher or health authorities. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty.

SIGNATURE PAGE

Protocol Version Number: 4.0   Date: 30 November 2020

OFFER TO ANSWER QUESTIONS

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all questions answered and have decided to participate.

Name of Research Participant (please print)
....Date………........................

Signature of Participant
…………………………………………….........................Time…………………………

Name of staff obtaining
consent…………………………………………Signature…………………….Date……….......

STATEMENT OF CONSENT TO BE AUDIOTAPED

I understand that audio recordings will be taken during the study. Please choose YES or NO by inserting your initials in the relevant box.

I agree to being audio recorded

Yes

No

Name of Participant…………………………………………………………..

Signature…………………………………………………………………….

Date……………………………………………………………………..

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant or research related injuries; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe (MRCZ) on telephone (04)791792 or (04)791193 and cell phone line 0784 956 128. The MRCZ Offices are located at the National Institute of Health Research premises at Corner Josiah Tongogara and Mazowe Avenue in Harare.

Appendix 14: In-depth Interview Informed Consent Form Ndebele version

Stellenbosch University

Faculty of Medicine and Health Sciences

Tygerberg Medical Campus

Parow

Isivumelwano labezempilakahle sokuba yingxenye yochwayisiso - Ugwalo 3.0

Usuku   :   25 Zibandlela 2021

Umchwayisisi omkhulu   :   Fennie Mantula

Inombolo zefoni   :   +263 773738146

 Isihloko sochwayisiso   :   Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.

Okumele ukwazi ngalolu chwayisiso:

Sikunika lesi sivumelwano ukuba ubale ngenjongo yalolu chwayisiso, ngengozi nxa ingabakhona ongahlangana layo nxa ube yingxenye, kanye lokuphathiseka ongakuthola ngokuba yi ngxenye yaloluchwayisiso.

Injongo kuzo zonke izichwayisiso yikuthola ulwazi olungaphathisa ezinye iziguli kwelizayo.

Asingeke sithembise ukuba lolu chwayisiso luzakuphathisa wena ngokwakho ngqo.

Ulelungelo lokwala ukuphatheka kulolu chwayisiso, kumbe ukuvuma khathesi kodwa uguqule umkhumbulo wakho sokuphambili.

Isinqumo ozasenza asisoze siphambanise indlela ozaphathwa ngayo emsebenzi wakho, kumbe ubudlelwano bakho laba chwayisisi.

Balisisa uzwisise kakuhle konke okubhalwe lapha, njalo ubuze konke ofisa ukukuzwisisa ungakenzi isinqumo.

Ukuba yingxenye yalolu chwayisiso akubanjwa ngamandla.

INJONGO

Ucelwa ukuba yingxenye yochwayisiso olukhangela **Izenqabelo ezenza abesifazana besiqinti seGwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uchwayisiso oluhlanganisa indlela ezehlukeneyo zokuhlaziya.**

Injongo yalolu chwayisiso yikudinga izizatho ezingabe zisenza ukuba abesifazana bayekethise ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane. Lokhu kuzancedisa ekudingeni amasu afaneleyo okuphungula imigoqo enqabela ukufinyelelwa kohlelo lolu esibhedlela esikhulu se Gwanda, besekuncedisa njalo ekwehliseni inani labesifazana abangahlaselwa ngumkhuhlane wemvukuzane yomlomo wesibeletho kusikhathi esizayo.

Ukhethiwe ukuba yi ngxenye yalolu chwayisiso ngoba ungomunye wabalobuciko kulezi sihloko. Ungabe uphatheke ngendlela yokufundisa, yokuhlola, kumbe ukunanzelela ukuba uhlelo luqhutshwa ngendlela efaneleyo. Kuzaxoxwa labezempilakahle abangaba ngamatshumi amathathu lane abakhethekileyo kulesisiqinti se Gwanda ukuze sizwe imibono yenu.

INDLELA OKUZAQHUTSHWA NGAYO

Nxa ukhetha ukuba yingxenye yalolu chwayisiso, ngizafisa ukuzwa imibono yakho ngokujulileyo mayelana lohlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane kusiqinti se Gwanda. Ulelungelo lokuxolisa ekuxoxeni ngalokho ongakhululekanga kikho. Kusiya ngempendulo ozangipha zona, ukuxoxa kwethu kungathatha isikhathi esingaba yimizuzu engamatshumi amathathu kusiya kwengamatshumi amane lanhlanu. Ngizasebenzisa umathathamazwi nxa ungivumela ukuze ngingalahlekelwa yilokhu ozangitshela khona. Konke esiyabe sikhulume ngakho ngizakulalela kumathathamazwi ngikubhale phansi kanye lokuyabe kukhulunywe ngabanye ukuze kubonakale lokhu elikubona njengemigoqo evimbela abesifazana ukuba bahlolwe. Okuyabe kukumathathamazwi akusoze kusetshenziswe kolunye uhlelo olungaphandle kwalolu chwayisiso, kantike akusoze kufinyelelwe ngomunye umuntu ngaphandle kwalabo abaphathelane lalolu chwayisiso. Ngemva kokuba uchwayisiso soluphelile, amazwi azachithizwa ngendlela efaneleyo. Ukhululekile ukulalela umathathamazwi ukuba uzwe ukuthi ngempela lokhu kungamazwi lemibono yakho, anduba kusetshenziswe ku chwayisiso lolu.

INGOZI LOKUHLUKUMEZEKA

Akula ngozi kumbe ukuhlukumezeka okukhangelelweyo ngokuphatheka kulolu chwayisiso ngoba akusoze kube lokuhlolwa kumbe ukwelatshwa. Okudingeka kuwe nje yikuthi uphe imibono yakho kabanzi ngalokhu esizaxoxa ngakho. Kodwake kalokhu lolu chwayisiso lusenzeka ngesikhathi

sobhubhane lwe COVID-19, ingabakhona ingozi yokuthola lumkhuhlane. Lokhu kungenzeka nxa umchwayisisi engabe elawo, kumbe nxa ungathinta itafula lapho okuyabe kubekwe khona umathathamazwi nxa kungenzeka ukuthi igciwane lihlezi kuyo. Kuzaba lokunanzelela okukhulu kokwehlisa ingozi yokudluliselana lolu bhubhane phakathi kwakho lomchwayisisi. Lanxa ukutshisa komzimba wakho kungabe kuhloliwe ngesikhathi uqala umsebenzi wosuku kulandelwa izimiso zenhlanganiso yezempilakahle, lokhu kuzakwenziwa futhi phambi kokuba imibuzo iqalise. Nxa umzimba wakho utshisa okungaphezu kwe 37.8^0C kumbe uzizwa ungaphilanga kahle, uzaxoliswa ekuphathekeni kululuchwayisiso ubusucelwa ukuba ubonane labezempilakahle ukuze uthole ukuncediswa. Phambi kokuba ingxoxo iqale, itafula okuzasetshenzelwa kuyo izahlanjululwa ngemithi efaneleyo. Nxa umumo uvuma, amafasiteli lomnyango kuzabe kuvuliwe kusenzelwa ukuba kungene umoya ohlambulukileyo. Uzanikezwa okokuvala umlomo lamakhala njalo ucelwa ukuba ungakwehliseli esilevini ngesikhathi sokuxoxisana. Uzacelwa njalo ukuba uhlanze izandla zakho ngomuthi ozawuphiwa ekuqaliseni lasekuphetheni kwengxoxo. Ngesikhathi sengxoxo, kuzatshiywa isikhala esingaba yisilinganiso sengalo ezimbili phakathi kwakho lomchwayisisi. Konke lokhu kuyimizamo yokwephula amathuba okudluliselana i COVID-19. Phezu kwalokho, uzaphiwa usiba lokuloba ozalugcina ukuze ufake isicibitshelo sakho ungantshintshani usiba lomchwayisisi.

INZUZO KUMBE IMBADALO

Akula nzunzo kumbe imbadalo ozayithola ngokuba yingxenye yalolu chwayisiso. Okungaba luncedo kuwe yikuthi impumela yalolu chwayisiso ingangconozisa indlela uhlelo lokuhlolwa olwenziwa ngayo kulesisiqinti, okungenza umsebenzi wakho ubelula.

UKUGCINEKA KUHLE KWAMAQINISO ESIZAWATHOLA KUCHWAYISISO

Nxa utshengisa ukulangathela kwakho ukuba yi ngxenye yalolu chwayisiso ngokufaka isicibitshelo sakho kulolugwalo, yazi ukuba sizakwazisa abakhulu bezempilakahle ku nsinda ye Matabeleland South impumela yochwayisiso, kanye leziphathamandla zesibhedlela esikhulu se Gwanda, ezedolobha le Gwanda kanye lezikhangele emaphandleni. Lokhu kuyikwenzela ukuba nxa kulendingeko, bathathe amanyathelo angangconozisa ukuphathwa kohlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane. Akula ndaba zempumela yochwayisiso eziza hlanganiswa legama lakho.

INDLEKO

Azikho indleko ozabalazo ngokuphatheka kulolu chwayisiso.

NXA KUNGENZEKA ULIMALE

Akulakulimala okukhangelelweyo ngokuphatheka kuloluchwayisiso kalokhu kuyabe kuphendulwa imibuzo nje. Kodwa nxa kungenzeka ungazizwa kuhle phakathi kwamaviki amabili kusukisela ekuxoxisaneni kwethu, uyacelwa ukuba wazise isiphathamandla sesibhedlela se Gwanda. Uzaxwayiswa ukuba uthathe manyethelo bani ukuze un<c>ediseke, njalo uzalandelelwa kubonakale isiphetho sokugula kwakho. Isiphathamandla sesibhedlela sizaxhumana lophethe lolu chwayisiso simazisa ngokugula kwakho kanye lempumela yakho.

UKUBA YINGXENYE YOCHWAYISISO KUNGELAKUBANJWA NGAMANDLA

Ukuba yi ngxenye yalolu chwayisiso kuyikuthanda komuntu. Nxa ukhetha ukungaphatheki kilo, isinqumo sakho asisoze siphambanise ubudlelwano bakho labachwayisisi, kumbe lomqhatshi wakho. Nxa ukhetha ukuba yingxenye yo chwayisiso, ukhululekile ukuguqula inqgondo uphume kulo kungela kuhlukuluzwa ozakwenziwa.

IKHASI LESICIBITSHELO

Protocol Version Number: 3.0   Usuku: 25 Zibandlela 2021

UCELO LOKUBA UBUZE IMIBUZO

Ungaka cibitsheli kuleli khasi, uyacelwa ukuba ubuze imibuzo ephathelane loba yini ehlangene lalolu chwayisiso ongabe ungakuzwisisi. Thatha isikhathi sonke osidingayo ukucabangisisa ngalokho.

UKUVUMA

Uthatha isinqumo sokuthi ube kumbe ungabi yingxenye yalolu chwayisiso. Isicibitshelo sakho siveza ukuba usubalile wazwisisa konke okuphawuliweyo, njalo waphendulwa yonke imibuzo obulayo yikho usuthethe isinqumo sokuba yingxenye yalolu chwayisiso.

Ibizo lophathekayo (ngamabala

amakhulu)...Usuku……………………

Isicibitshelo sophathekayo

……………………………………………………..Isikhathi…………………..

Ibizo lomchwayisisi othola imvumo

………………………………………………………………………………..

Isicibitshelo…………………………………Usuku…………………………………

UMUGCA WOKUVUMA UKUTHATHWA AMAZWI

Ngiyazwisisa ukuba umathathamazwi uzasetshenziswa ngesikhathi sokuqhuba loluchwayisiso. Khetha phakathi kuka YE kumbe u HATSHI ngokufaka amabala akuqala ebizo lesibongo sakho ebhokisi lempendulo oyikhethayo.

Ye

Hatshi

Ibizo lobuzwayo…………………………………………………………….

Isicibitshelo…………………………………………………………………..

Usuku……………………………………………………………………………

Uzaphiwa ikhasi lakho lesivumelwano lesi ukuze uligcine

Nxa ulemibuzo mayelana lalolu chwayisiso kumbe isivumelwano engaphezu kwendlela ophendulwe ngumchwayisisi; lokhu kugoqela imibuzo ephathelane lochwayisiso kumbe amalungelo akho njengo

295

thatha ingxenye, amanyathelo azathathwa nxa kungenzeka ulimale ngesizatho so chwayisiso lolu, kumbe nxa ungaphathwanga kuhle ufisa ukukhuluma lomunye ongasilo lunga laba chwayisisi, ukhululekile ukuthintana le Medical Research Council of Zimbabwe (MRCZ) kunombolo ezithi (04)791792 kumbe (04)791193, le nombolo zikamakhalekhukhwini zithi 0784 956 128. Amawofisi e MRCZ Offices atholakala e National Institute of Health Research ku Corner Josiah Tongogara lo Mazowe Avenue e Harare.

Appendix 15: Researcher- Administered Questionnaire – English Version

RESEARCHER ADMINISTERED QUESTIONNAIRE

Research topic:
"Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis".

Thank you for accepting to participate in this study. My name is Fennie Mantula, a PhD student at Stellenbosch University. The purpose of the study is to learn about your knowledge, beliefs and behaviours related to cervical cancer screening. We also wish to identify if there are any difficulties women face in accessing screening.

I would like you to respond to some questions about cervical cancer and cervical cancer screening practices. There is no right or wrong answer; I am just interested in your opinion. If you are unsure of the answer, please just give the nearest to what you think is the correct answer. I request that you respond to all the questions. However, you should feel free not to answer those questions you are not comfortable with. Your views are very important because they may help improve cervical cancer screening programmes in future for the benefit of other women in Gwanda District.

The questionnaire should take about 30-45 minutes to complete and your answers will not be shown to anyone not connected to the study but will remain anonymous.

Participant Study ID…………………………………………………………………………..

Participant's community……………………………………………………………….

Date………………………………………………………………………………………

Time started   …………………………………………………………………………

Time completed…………………………………………………………………………..

Instructions to Researcher: Complete or mark selected answer(s) with an x as appropriate

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1	What is your age? …………………………completed years	
2	What is your place of residence?	
1	Rural	
2	Urban	
3	Mine	
3	What is your marital status?	
1	Single	
2	Married	
3	Cohabiting (Living together)	
4	Divorced	
5	Widowed	
4	How many children have you had? ……………………………………………………	
5	What is your highest level of education?	
1	Never went to school	
2	Primary School	
3	Secondary School	
4	Diploma	
5	University degree	
6	Other (specify)………………………………………………………………	
6	What is your employment status?	
1	Employed (have a Boss)	
2	Self-employed	
3	Unemployed	
7	Where do you usually seek health services?	
1	Rural Health Centre	
2	Urban clinic	
3	Mine clinic	

4	Gwanda Provincial Hospital	
5	Other, please specify ……………………………………………………………………………………	
8	Have you ever had an HIV test?	
1	Yes	
2	No	
9	Have you ever had HPV vaccination?	
1	Yes	
2	No	
10	Is there a history of cervical cancer in your family?	
1	Yes	
2	No	
3	Don't know	

SECTION B: KNOWLEDGE ABOUT CERVICAL CANCER

11	Have you ever heard about cervical cancer before meeting the current researcher?	
1	Yes	
2	No (if no, researcher briefly gives information on cervical cancer and skips to Q 17	
12	What is cervical cancer? (Participant to give one response)	
1	Cancer that affects women	
2	Cancer that affects the body	
3	Cancer that affects the cervix	
4	Cancer that affects the uterus	
5	Cancer that affects the vagina	
6	Don't know	
7	Other, specify…………………………………………………………………………… …………………………………………………………………………………… …………………………………………………………………………………… …………………………………………………………………………	
13	What do you think is the main cause of cervical cancer? *Participant to give one response*	
1	HPV infection	
2	Vaginal infection	
3	Hereditary	
4	Evil spirits	
5	Unprotected sex	
6	Don't know	
7	Other, specify…………………………………………………………………………………… …………………………………………………………………………………………… …………………………………………………………………………………………… ……………………………………………………………………………………………	
14	Please indicate for each of the following behaviours whether they increase or decrease the risk of developing cervical cancer: *Researcher to read out the items one by one and select the answers which the participant gives*	

298

		1	2	3	4
		Increase	Decrease	No effect	Don't know
	Having sexual intercourse at an early age				
	Having multiple sexual partners				
	Sexual activity with a man who has multiple partners				
	HIV infection				
	Poor genital hygiene				
	Diet low in fruits and vegetables				
	High number of pregnancies/childbirths				
	Smoking				
	Prolonged use of oral contraceptives				
	Use of herbs and other materials in the vagina				
15	What are the complaints in a person who has cervical cancer? (Has multiple responses) *Researcher reads out the question and selects the responses which the participant offers*				
1	Excessive vaginal bleeding				
2	Bleeding between periods				
3	Pain during sex				
4	Unusual vaginal discharge (discharge *that may contain blood & occurs between periods or after menopause)*				
5	Pelvic pain (Interviewer *to indicate the area of pain)*				
6	Bleeding after sex				
7	Don't know				
8	Other, specify……………………………………………………………………				
16.	How can cervical cancer be prevented? – *More than 1 answer can be given*				
1	Through HPV vaccination of young girls before they engage in sexual activities				
2	Screening for detection and treatment of precursor lesions				
3	Don't know				
4	It cannot be prevented				
17	Do you know about the National HPV vaccination programme for girls aged 10-14 years?				
1	Yes				
2	No				
18	How is HPV transmitted?				
1	Sexually				
2	Don't know				
3	Other means, specify……………………………………………………………………………………				
19	Males can help in reducing the chances of acquiring HPV through the following behaviours				

		1	2	3
		True	False	Don't know
	Consistent use of condoms			
	Undergoing male medical circumcision			
	Having one sexual partner			

	SECTION C: KNOWLEDGE AND AWARENESS ABOUT CERVICAL CANCER SCREENING	
20	Have you ever heard about cervical cancer screening?	
1	Yes (If yes, continue to Q 21)	
2	No (If no, skip to Q 27)	
21	Can you indicate which test is used to screen for cervical cancer	
1	X-Ray	
2	Pap Smear	
3	Blood test	
4	VIAC	

5	Measuring Temperature	
6	HPV DNA	
7	Don't know	
22	How is cervical cancer screening performed? ………	
23	What were your sources of information about cervical cancer screening?	
1	Health Professional	
2	Family/friends	
3	School	
4	Mass media	
5	Other, specify……………………………………………………………………………………………………	
24	Can screening detect early disease?	
1	Yes	
2	No	
3	Don't know	
25	Is the disease curable if detected early?	
1	Yes	
2	No	
3	Don't know	
26	What is the recommended VIAC screening frequency in Zimbabwe in normal circumstances?	
1	1 year	
2	2 years	
3	3 years	
4	Other (specify)…………………………………………………………………………………	
SECTION D: ATTITUDES TOWARDS CERVICAL CANCER AND SCREENING		
27	Do you think it is possible for you to get cervical cancer?	
1	Yes	
2	No	
3	Don't know	
28	Do you think cervical cancer is a serious disease?	
1	Yes	
2	Know	
3	Don't know	
29	Do you think women should be examined for cervical cancer even if they have no health problem?	
1	Yes	
2	No	
3	Don't know	
30	Do you want to know more about cervical cancer screening?	
1	Yes	
2	No	
31	How do you rate your current general health status?	
1	Excellent	
2	Good	
3	Moderate	
4	Poor	

	SECTION E: PRACTICES ON CERVICAL CANCER SCREENING	
32	Have you ever been screened for cervical cancer? *(Researcher first explains to the participant what cervical cancer screening is)*	
1	Yes (If yes, skip to Q 35)	
2	No	
3	I don't know (skip to Q 34)	
33	If no, why not? Please give reasons …………………………………………………………………………………………………… …………………………………………………………………………………………………..	
34	Do you wish to be screened? (answer and skip to Q 38)	
1	Yes (*Researcher refers participant to local health facility for referral to screening site*)	
2	No	
3	I am not sure	
35	If yes to Q 32, how long ago were you screened?	
1	Within 1 year	
2	Within 2 years	
3	Within 3 years	
4	More than 3 years ago	
36	Where were you screened	
1	Gwanda Provincial Hospital	
2	Other, specify…………………………………………………………………………	
37	What was your reason for screening?	
1	Recommended by health professional	
2	I decided on my own	
3	Advised by family/friends	
4	Other, specify………………………………………………………………………… …………………………………………………………………………………………	
	SECTION F: BARRIERS TO CERVICAL CANCER SCREENING	
38	Do you face any barriers/challenges in accessing cervical cancer screening?	
1	Yes	
2	No	
39	The following could be some of the barriers which make women not to go for screening *(Researcher selects the response/s which participant offers)*	
1	Inadequate / Lack of knowledge about cervical cancer screening	
2	Lack of knowledge about where to go for screening	
3	Not having any complaints/symptoms	
4	Stigma associated with cervical cancer and screening	
5	Lack of health education programmes that promote screening	
6	Partner disapproval of cervical cancer screening	
7	Family disapproval of cervical cancer screening	
8	Screening not performed at local clinics	
9	Lack of money	
10	Fear of cancer diagnosis	
11	Screening test is painful	
12	Screening test is embarrassing	
13	Clinic operating times not convenient	
14	No perceived risk for cervical cancer	
15	Other reasons, please specify	

	…………………………………………………………………………………………………… ……………………………………………..………………………………………………………………… ……………………………………………………………………………………..
FIELD NOTES	
……… ……… ……… ……… ……… ……… ……… ……… ……… ……… ……… ………	

THANK YOU FOR PARTICIPATING IN THIS STUDY

Appendix 16: Researcher-Administered Questionnaire – Ndebele Version

IMIBUZO ETHUNGAMELA UMCHWAYISISI	

IMIBUZO ETHUNGAMELA UMCHWAYISISI

Ngiyabonga ngokwamukela kwakho ukuphatheka kulolu chwayisiso. Mina ngingu Fennie Mantula, isifundi semfundo yaphezulu e Stellenbosch University. Injongo yalolu chwayisiso yikuthi ngazi ngolwazi lwakho, okukholwayo kanye lokwenzayo mayelana lohlelo lokuhlolwa kwesibeletho kukhangelwa imvukuzane. Sifisa njalo loku hlolisisa ubunzima abesifazana abangabe behlangana labo ekufinyeleleni lokhu kuhlolwa.

Ngifisa ukuba uphendule imibuzo emayelana lomkhuhlane wemvukuzane womlomo wesibeletho kunye lokuphathelene lokuhlolwa kwalowo mkhuhlane. Akulampendulo eqondileyo kumbe engaqondanga; Engikufisayo nje yikwazi ukuba wena ucabangani ngalokho. Nxa ungelasiqiniselo lempendulo, nika impendulo ocabanga ukuba iseduze lalokho okubuzwayo. Bengicela ukuba uphendule yonke imibuzo. Kodwa ke, khululeka ukungaphenduli imibuzo ongafisiyo ukuyiphendula. Imibono yakho iqakathekile ngoba inganceda ekungconozisweni uhlelo lokuhlolwa umlomo wesibeletho kudingwa imvukuzane okunganceda isifazana esinengi esiqintini se Gwanda kwelizayo.

Imibuzo le izathatha amatshumi amathathu kusiya kwamane lanhlanu ukuba uqede ukuyiphendula kantike impendulo zakho asisoze sitshengiswe muntu ongaphathelananga lalolu chwayisiso.

Inombolo emele ophendulayo	
…………………………………………………………………………………	
Indawo okuhlala ophendulayo	
………………………………………………………………………………..	
Kumhlaka …………………………………………………………………….	
Isikhathi sokuqalisa………………………………………………………………………	
Isikhathi sokuqeda	
………………………………………………………………………………………………	

ISIGABA SAKUQALA: OKUPHATHELENE LOPHENDULAYO	
1	Uleminyaka yokuzalwa emingaki? …………………………………………………………egcweleyo
2	Uhlala kuyiphi indawo?

1	Emaphandleni	
2	Edolobheni	
3	Emgodini	

3	Wendile na?

1	Angikaze ngende	
2	Yebo ngendile	
3	Sihlala ndawonye kodwa asitshadanga	
4	Ngehlukana lomkami	
5	Ngafelwa	

4	Ulabantwana / sube labantwana abangaki?..
5	Ufunde wafika kusiphi isibanga?

1	Angiyanga esikolo	
2	Imfundo yaphansi	
3	Imfundo yaphezulu	
4	Ngi le Diploma	
5	Ngile degree	

303

6	Okunye okungabethwanga (chaza)………………………………………………………..	
6	Umsebenzi owenzayo	
1	Ngiqhatshiwe	
2	Ngiyazisebenza	
3	Angisebenzi	
7	Izikhathi ezinengi uthola ngaphi usizo lwezempilakahle?	
1	Eklinika yasemaphandleni eGwanda	
2	Eklinika yasedolobheni le Gwanda	
3	Eklinika ye mayini	
4	Esibhedlela esikhulu se Gwanda	
5	Kwenye indawo (yitsho)…………………………………………………………………	
8	Usuke wahlolwa igazi kukhangelwa i HIV na?	
1	Ye	
2	Hatshi	
9	Usuke wahlatshwa kuvikelwa i HPV na?	
1	Ye	
2	Hatshi	
10	Kulembali yomkhuhlale womlomo wesibeletho emulini yangakini na?	
1	Ye	
2	Hatshi	
ISIGABA SESIBILI: ULWAZI MAYELANA LEMVUKUZANE YOMLOMO WESIBELETHO		
11	Usuke wezwa ngomkhuhlane wemvukuzane yomlomo wesibeletho na?	
1	Ye	
2	Hatshi (Yana ku 17)	
12	Kuyini imvukuzane yomlomo wesibeletho?	
1	Yi mvukuzane ehlasela abesifazana	
2	Yi mvukuzane ehlasela umzimba	
3	Yimvukuzane eba emlonyeni wesibeletho	
4	Yimvukuzane ehlasela isibeletho	
5	Yimvukuzana ehlasela insitha yabesifazana (vagina)	
6	Angikwazi	
7	Enye impendulo (chaza) …………………………………………………………………	
13	Isiqokoqela sembangela yemvukuzane yomlomo wesibeletho yini? (nika impendulo eyodwa)	
1	Li gciwane elithiwa yi HPV	
2	Ukuhlaselwa kwensitha (vagina) yowesifaza yizibungwana ezibanga imikhuhlane	
3	Kuba semulini	
4	Yi mimoya emibi	
5	Yikuya emacansini umuntu engazivikelanga	
6	Angikwazi	
7	Esinye isizatho (sitsho)……………………………………………………………………	

304

14	Ngokubonakwakho, tshono ukuthi lokhu okulandelayo kungakhweza kumbe kungehlisa ingozi yokuthi owesifazana athole imvukuzane yomlomo wesibeletho yini				
		Kungakhweza	Kungehlisa	Akuntsintshintshi lutho	Angikwazi
1	Ukuqala amacansi umuntu esesemncane				
2	Ukuya emacansini labantu abanengi				
3	Ukuya emacansini lomuntu oya emacansini labantu abanengi				
4	Nxa ule ngculazi ye HIV				
5	Ukungahlanzi kuhle izitho zangasese				
6	Ukungadla izithelo lemibhida ngokwaneleyo				
7	Ukuba labantwana abanengi kumbe nxa sowazithwala kanengi				
8	Ukubhema igwayi				
9	Ukunatha amaphilisi okuhlela imuli okwesikhathi eside				
10	Ukugqiba izihlahla lokunye okutshiyeneyo ngensitha				
15	Yiziphi iziboniso zomkhuhlane wemvukuzane yomlomo wesibeletho? (Impendulo zingabanengi)				
1	Ukopha kakhulu kwangensitha				
2	Ukopha phakathi kwesikhathi				
3	Ubuhlungu ngesikhathi samacansi				
4	Ingcekeza engajwayelekanga ephuma ngensitha				
5	Ubuhlungu enqulwini				
6	Ukopha ngemva kokuya emacansini				
7	Angikwazi				
8	Okunye, kutsho…………………………………………………………………………………				
16.	Imvukuzane yomlomo wesibeletho ingavikelwa njani? – (Impendulo zingaba zinengi)				
1	Ukuhlaba amankazana angakayi emacansini i HPV				
2	Ukuhlolwa kukhangelwa imvukuzane yomlomo wesibeletho lokwelatshwa nxa kutholakale iziboniso zokungami kuhle				
3	Angikwazi				
4	Ingeke ivikelele				
17	Usuke wezwa ngohlelo lokuhlaba amankazana aleminyaka esukela kutshumi kusiya kutshumi lane ezikolo kuvikelwa igciwane le HPV ?				
1	Ye				
2	Hatshi				
18	Igciwane le HPV lithelelwana njani?				
1	Emacansini				
2	Angikwazi				
3	Ngezinye indlela, chaza……………………………………………………………………………………				
19	Abesilisa bengehlisa amathuba okuthola igciwane le HPV ngalezi indlela				
		1	**2**	**3**	
		Yikho	Ayisikho	Angikwazi	

305

1	Ukusebenzisa ama khondomu ngazo zonke izikhathi			
	Undergoing male medical circumcision			
	Having one sexual partner			
	ISIGABA SESITHATHU: ULWAZI MAYELANA LO HLELO LOKUHLOLWA KOMLOMO WESIBELETHO			
20	Usuke wezwa ngohlelo lokuhlolwa komlomo wesibeletho na?			
1	Ye (Yana ku 21)			
2	Hatshi (Yana ku 27)			
21	Tshono ukuthi umlomo wesibeletho uhlolwa ngayiphi indlela			
1	Nge X-Ray			
2	Ngokwenziwa okuthiwa yi Pap Smear			
3	Kuhlolwa igazi			
4	Ngokwenziwa okuthiwa yi VIAC			
5	Ngokuhlolwa Ukutshisa komzimba			
6	Ngokusetshenziswa ukuhlolwa okuthiwa yi HPV DNA			
7	Angikwazi			
22	Ukuhlolwa komlomo wesibeletho kukhangelwa imvukuzane kwenziwa njani? …………………………………………………………………………………… …………………………………………………………………………………… …………………………………………………………………………………… …………………………………………………………………………………… ……………………………………………………………………………………			
23	Uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane waluzwa ngobani??			
1	Ngabezempilakahle			
2	Yimuli/ngabangane			
3	Esikolweni			
4	Kwabahambisa izindaba			
5	Ngezinye indlela (chasisa)…………………………………………………………………………… ……………………………………………………………………………………			
24	Nxa kuhlolwa umlomo wesibeletho, kuyeneliseka yini ukuthi imvukuzane esaqalisayo ibonakale yini?			
1	Ye			
2	Hatshi			
3	Angikwazi			
25	Nxa umkhuhlane ubonakale masinya, kuyeneliseka ukuthi welatshwe yini?			
1	Ye			
2	Hatshi			
3	Angikwazi			
26	Kwele Zimbabwe, kukhuthazwaa ukuthi owesifazana ahlolwe ngemva kwesikhathi esinganani nxa konke kumi kahle?			
1	Umnyaka owodwa			
2	Iminyaka emibili			
3	Ngemva kweminyaka emithathu			
4	Enye impendulo (chaza)……………………………………………………………………………			
	ISIGABA SESINE: OKUCATSHANGWA NGE MVUKUZANE YOMLOMO WESIBELETHO LOKUHLOLWA KWAYO			
27	Ngokubona kwakho, kungenzeka ukuba uyithole imvukuzane yomlomo wesibeletho na?			
1	Ye			
2	Hatshi			
3	Angikwazi			
28	Ngokucabanga kwakho, imvukuzane yomlomo wesibeletho ngumkhuhlane onzima na?			

1	Ye	
2	Hatshi	
3	Angikwazi	
29	Kambe kufanele yini ukuthi abesifazana bahlolwe imvukuzane yomlomo wesibeletho lanxa kungelalutho olukhathazayo ngempilakahle yabo na?	
1	Ye	
2	Hatshi	
3	Angikwazi	
30	Uyafisa ukwazi kabanzi ngomkhuhlane we mvukuzane yomlomo wesibeletho kanye lohlelo lokuhlola na?	
1	Ye	
2	Hatshi	
31	Impilakahle yakho ungayifaka kuliphi izinga?	
1	Inhle kakhulu	
2	Inhle	
3	Yikholokho nje	
4	Ayinhle	

ISIGABA SESIHLANU: UKWAMUKELEKA KOKUHLOLWA

32	Usuke wahlolwa umlomo wesibeletho na kukhangelwa imvukuzane? *(Umphenyi uqala ngokuchaza ukuthi utshoni nxa ekhuluma ngokuhlolwa)*	
1	Ye (Yana ku 35)	
2	Hatshi	
3	Angikwazi (Yana ku 34)	
33	Nxa kungenjalo, nika izizatho ………………………………………………………………………………………… ………………………………………………………………………………………… …………………………………………………………………………………………	
34	Uyafisa ukuhlolwa (Phendula ubususiya ku 38)	
1	Ye (Umphenyi ulayela ophendulayo lapha angahlolwa khona*)*	
2	Hatshi	
3	Angilaqiniso	
35	Nxa uthe ye ku 32, uhlolwe nini?	
1	Emnyakeni odluleyo	
2	Soku leminyaka emibili	
3	Sokuyiminyaka emithatu	
4	Sekwedlule iminyaka emithatu	
36	Wahlolelwa ngaphi?	
1	Esibhedlela esikhulu se Gwanda	
2	Kwenye indawo, chaza…………………………………………………………………………………… …………………………………………………………………………………..	
37	Isizatho sakho sokuhlolwa sasingesani?	
1	Ngacetshiswa ngabezempilakahle	
2	Ngazithathela leso sinqumo ngoba ngibona kufanele	
3	Ngakhuthazwa yimuli/ngabangane	
4	Esinye isizatho, sitsho …………………………………………………………………………………… ……………………………………………………………………………………	

ISIGABA SESITHUPHA: OKWENQABELA ABESIFAZANA UKUTHI BAHLOLWE

38	Ulezenqabelo ezikuvimbela ukuba ufinyelele uhlelo lokuhlolwa kukhangelwa imvukuzane yomlolmo wesibeletho na?	
1	Ye	
2	Hatshi	
39	Lokhu okulandelayo kungaba ngezinye zezizatho ezibangela ukuthi abesifazana bengafinyeleli uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane na? *(Umphenyi umaka izizatho eziqanjwa ngobuzwayo)*	
1	Ukungazi kumbe ulwazi oluncane mayelala lohlelo	
2	Ukungazi izindawo lapho okuhlolelwa khona	
3	Nxa ngizizwa ngiphilile ngingezwa buhlungu	
4	Ukukhangelwa ngelihlo elingalihle ngenxa yokuba yi ngxenye yaloluhlelo	
5	Ukungabi lezifundo eziphiwa omama ngalolu hlelo	
6	Ngoba umkami engafuni ukuthi ngihlolwe	
7	Ngoba abemuli bengafuni ukuthi ngihlolwe	
8	Alukho uhlelo lokuhlola eklinika eseduze lathi	
9	Ukuswela imali	
10	Ukwesaba ukubanjwa imvukuzane	
11	Ubuhlungu bokuhlolwa	
12	Indlela okuhlolwa ngayo iyayangisa	
13	Izikhathi okuvulwa ngazo lapho ziyatshiyana lalapho engikhululeka khona	
14	Angilangozi yokuba lemvukuzane yomlomo wesibeletho	
15	Nxa ulezinye izizatho, zitsho …………………………………………………………………………………………………… …………………………………………………..………………………………………………… …………………………………………………………………………………………………..	
Okunanzelelwe ngesikhathi kubuzwa imibuzo		
……… ……… ……… ………		

SIYABONGA NGOKUPHATHEKA KWAKHO KULOLU PHENYO

Appendix 17: Focus Group Discussion Guide – English Version

Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

<u>**Introduction**</u>

My name is Fennie Mantula, a PhD student from Stellenbosch University. I would like us to discuss about cervical cancer and screening practices among women in your district. The purpose of the discussion is to learn more about your knowledge and beliefs on cervical cancer and practice of cervical cancer screening, and to identify difficulties that you as women face in accessing screening services. Your opinion is very important because it could help find ways to address those difficulties to improve the cervical cancer screening programme in the future.

Your participation is completely voluntary, and you can choose not to participate in part or at all in the project. You are free to keep quiet if you do not want to talk about any issue and you can withdraw at any stage without being penalised or disadvantaged in any way. Any information that you provide is strictly confidential. Your privacy will be protected, and full steps will be taken to ensure anonymity. Whatever you say will not be linked to your name so feel free to express your honest opinion. There is no right or wrong answer so please express whatever is in your mind and make suggestions. The discussion will take about one hour.

I would like to record the discussion session so that I do not lose any important information that will come up during the discussion. Please speak loudly so that we can hear the information you give us. I will transcribe all the information from the recorder and the recordings will be destroyed when it is no longer required. The recording will not be used for any other purpose other than this study and will not be accessible to anyone else other than the research team. You can verify your comments and responses after the recording.

Are there any questions you would like to ask? Thank you for your willingness to participate in this study and now we will get started.

FGD ID……………………………………………………………………

FGD Location……………………………………………………….

FGD Date………………………………………………………….

Time started………………...

Time completed……………**………………………………………..**

Definitions

During this focus group, we will be dealing with many technical and sometimes sensitive terms, can we just go through them, so we all know what we are talking about when we use certain words.

Probe for local name for cervical cancer

Probe for local names for the male and female reproductive organs

Difference between cervix, womb and vagina

Sexual acts ("sleeping together", oral, anal, hand, thigh, other)

Questions

1.What do you think is the most common cancer among women in Zimbabwe?

- ➢ Rank top 3
- ➢ Motivate responses

2. The number of women suffering from cervical cancer in Zimbabwe is on the increase. What can you tell me about cervical cancer?

- ➢ Which organ is affected?
- ➢ Knowledge of HPV as the primary cause
- ➢ Socio-cultural beliefs such as witchcraft, associated myths and misconceptions
- ➢ Who is most likely to develop cervical cancer?
- ➢ Probe for the most 'at risk' age group

3. Please could you name as many things as you can think of that could increase any woman's chances of getting cervical cancer?

- ➢ Probe for cervical cancer risk factors
- ➢ Prompt with ………anything else?
- ➢ Probe for specific factors that predispose women in the local community to cervical cancer - Probe for any socio-cultural practices

4. There are many warning signs of cervical cancer. Please could you name as many as you can think of?

- ➢ How confident are you that you would notice a cervical cancer symptom?
- ➢ Probe for health awareness programmes

5. What would you do if you had a symptom that you think could be cervical cancer?

  Probes:

- ➢ Would you ignore it, would you try self-medication, would you tell someone close to you, would you visit a clinic or hospital, would you visit a traditional healer or is there anything else you would do?
- ➢ How soon would you take that action – visit clinic or hospital, traditional healer?

6. As far as you are aware, is there a vaccination to protect against cervical cancer? If yes, at what age is it offered?

7. Could you please suggest ways that could be used to detect cervical cancer in its early stages when it can still be treated?

o   Available screening methods

8. As far as you are aware, what cervical cancer screening services are available in the district?

- ➢ VIAC Clinic, Outreach services, ZNFP private clinic
- ➢ At what age should a woman start screening?
- ➢ How often should a woman be screened
- ➢ How common is it for women in your community to have cervical screening?
- ➢ Could you please share your cervical cancer screening experiences?

9. Sometimes women put off going for cervical cancer screening, what could be the reasons for this?

Probe for:

- ➢ Socio-cultural and religious barriers to screening practices
    - o How difficult is it to talk about sexually related issues among women in your community?
    - o How best can issues on sexuality be discussed among women?
    - o Role of men in the decision for screening
- ➢ Health system related barriers
- ➢ Community factors
- ➢ Interpersonal factors
- ➢ Good practices of screening

10. What would you like to see done differently in relation to the cervical cancer screening programme in Gwanda district?

- ➢ Probe for strategies and recommendations for improving the screening programme

Thank you for taking time to answer my questions. Now that the discussion is over, are there any questions you would like to ask, or do you have any comments from our discussion?

Appendix 18: Focus Group Discussion Guide – Ndebele Version

Izenqabelo ezenza abesifazana be Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uphenyo oluhlanganisa indlela ezehlukeneyo zokuhlaziya.

<u>**Isingeniso**</u>

Mina ngingu Fennie Mantula, isifundi semfundo yaphezulu e Stellenbosch University. Ngifisa ukuba sixoxisane ngodaba lomkhuhlane wemvukuzane yomlomo wesibeletho kanye lendlela abesifazana besiqinti seGwanda abaphatha ngayo uhlelo lokuhlolwa kukhangelwa limvukuzane. Injongo yalokho yikuba sazi ulwazi lenkolo yenu mayelana lalo umkhuhlane, uhlelo lokuhlolwa, kanye lokunanzelela ubunzima abesifazana abangabe behlangana lalo ekufinyeleleni lolu uhlelo. Imibono yenu iqakathekile kithi ngoba izasincedisa ukudinga indlela zokulungisisa leyo migoqo. Lokho kungangconozisa indlela uhlelo olungasebenza ngalo kwelizayo.

Ukuphatheka kwakho kule ingxoxo akubanjwa ngamandla, njalo ungakhetha ukungabi yingxenye kukho. Ukhululekile ukuba uthule uma ungafisi ukuxoxa loba nga yikuphi okuyabe kukhulunywa ngakho, njalo lokho akusoze kwenze uhlukuluzeke noma ngayiphi indlela. Konke esizakukhuluma lapha akuyikukhutshelwa komunye umuntu ongasongxenye yalolu phenyo. Imizamo yonke izakwenziwa ukuba ibizo lakho lingahlanganiswa lalokho ozakukhuluma. Uyacelwa ukuba ukhululeke ukukhuluma ngeqiniso lonke konke ngalokhu okucabangayo. Akulampendulo eqondileyo kumbe engaqondanga kungakho kumele ukhululeke ukutsho okusemkhumbulweni wakho njalo utsho lalokho obona kungancedisa ukuphathwa kohlelo. Ingxoxo le izathatha isikhathi esingaba lihola.

Ngifisa ukuba ngithathe amazwi alokho esizaxoxa ngakho ukwenzela ukuba ngingalahlekelwa ngokuqakathekileyo okuyabe kukhulunyiwe. Siyacela ukuba likhulumele phezulu ukwenzela ukuthi sizwe lokhu eliyabe lisitshela khona. Ngemva kwengxoxo ngesikhathi esifaneleyo, kuzalalelwa konke okuyabe kukhulunyiwe besekubhalwa phansi ngendlela okuyabe kukhulunywe ngayo. Nxa umsebenzi ophathelane lamazwi la usuphelile, okuthwele amazwi kuzachithizwa ngendlela efaneleyo. Amazwi athethweyo awasoze asetshenziswe komunye umsebenzi ongaphathelananga lalolu phenyo njalo awasoze afinyelelwe ngomunye umuntu ngaphandle kwalabo abaku phenyo lolu. Ngemva kokuba sesiqedile ukuxoxa, ulelungelo lokulalela okukhulunyiweyo ukuze ube lesiqiniselo sokuthi ngempela yiwo amazwi akho.

Kungabakhona ofisa ukukubuza singakaqalisi? Ngiyabonga kakhulu ngokulangazelela ukuhlanganyela kule ingxoxo. Khathesi sesizaqala ukuxoxa.

Inombolo yengxoxo………………Indawo okwenzelwe ingxoxo………………………………………….

Usuku………………Isikhathi sokuqala……………………......Isikhathi sokuqeda……………………

Ingcazelo

Ekuxoxeni kwethu, sizakhuluma amabala abizwangendlela ezitshiyeneyo endaweni ezehlukeneyo. Kuhle ukuthi siqale ngokuvumelana amabala asetshenziswayo kulindawo kutshiwo izenzo lezitho zomzimba ezithile ukuze sonke sazi ukuthi sikhuluma ngani.

- ➢ Dingisisa ibala elisetshenziswayo kulindawo nxa kukhulunywa ngemvukuzane yomlomo wesibeletho
- ➢ Dingisisa amabala asetshenziswayo nxa kukhulunywa ngezitho zabesilisa labesifazana ezangasese
- ➢ Umahluko phakathi komlomo wesibeletho, isibeletho, lesitho esihlanganisa umlomo wesibeletho lengaphandle yaso
- ➢ Amabala asetshenziswa nxa kukhulunywa ngokuhlangana kowesilisa lowesifazana

Imibuzo:

1. Ngokubona kwenu, yiphi imvukuzane ejayelekileyo kwabesifazana kweleZimbabwe?

- ➢ Qamba ezintathu ezijayeleke kakhulu ngokulandelana kwazo
- ➢ Nika izizatho ezenza lezo mvukuzane zihlasele kakhulu

2. Inani labesifazana elihlaselwa yimvukuzane yomlomo wesibeletho liya likhula, Kuyini elingangitshela

khona ngalo umkhuhlane?

- ➢ Ihlasela siphi isitho somzimba?
- ➢ Dinga ukuthi nga ulwazi lokuthi iHIV yilo igciwane eliyimbangela yalimvukuzane lukhona yini
- ➢ Inkolo zokuthi imvukuzane ngamaloyo
- ➢ Osengozini yokuwuthola lo umkhuhlane
- ➢ Iminyaka lapho okulengozi ephezulu yokuthola le imvukuzane

3. Qamba izizatho ezenza owesifazana abesengozini enkulu yokuthola imvukuzane yomlomo wesibeletho.

- ➢ Dingisisa okuqondane lesabelo lesi
- ➢ Dingisisa okuphathelane lamasiko

4. Zikhona izitshengiselo zokuba owesifazana engabe eselemvukuzane yomlomo wesibeletho. Qamba

iziboniso zonke ozaziyo

- ➢ Ungaba laso sibili isiqiniselo sokubona ukuthi lesi yisitshengiselo semvukuzane yomlomo wesibeletho?
- ➢ Dingisisa ngezinhlelo zokufundisa abantu ngalokhu

5. Manyathelo bani ongawathatha nxa ubona isitshengiselo ocabanga ukuthi yimvukuzane yomlomo

wesibeletho?

- ➢ Ungakutshaya indiva ungenzi lutho? ungazama ukuzelapha? ukutshela oseduze lawe? ukuya esibhedlela kumbe enyangeni? kumbe yini nje ongayenza?
- ➢ Kungakuthatha isikhathi esinganani ukuthi uthathe lelo nyathelo- ukuya esibhedlela kumbe enyangeni?

6. Ngokwazi kwakho, sikhona isivikelo somkhuhlane wemvukuzane yomlomo wesibeletho ngokuhlatshwa

na? Nxa kunjalo, kuhlatshwa umuntu oleminyaka emingaki?

313

7. Zingabakhona yini indlela ezingasetshenziswa ukunanzelela imvukuzane yomlomo wesibeletho masinya isayelapheka?

> ➤ Dingisisa ulwazi ngenhlelo zokuhlolwa

8. Ngokwazi kwakho, inhlelo zokuhlolwa zitholakala ngaphi kulesisiqinti?

> ➤ E kliniki ye VIAC, kwabahlola emakliniki besukela esibhedlela esikhulu, kumadokotela azimeleyo
> ➤ Kukhuthazwa ukuthi owesifazana aqale nini ukuhlolwa?
> ➤ Kumele umuntu ahlolwe ngemva kwesikhathi esinganani?
> ➤ Ukujayeleka kokuthi abesifazana bahlolwe kulesisigaba
> ➤ Kwasebeke bahlolwa, dingisisa inkambo zabo ngokuhlolwa

9. Kwesinye isikhathi abesifazana bayadonda ukuthi bahlolwe, kambe izizatho zalokhu zingabe ziyini?

> ➤ Dingisisa okuphathelane lamasiko kanye lenkolo
>> o Kunzima kumbe kulula kanganani ukuxoxa lokuphathelane lamacansi phakathi kwabomama
>> o Indaba ezinjalo kungaxoxeka ngazo kalula ngaziphi indlela
>> o Abesilisa badlala yiphi indima endabeni yokuhlolwa kwabesifazana?
>> o Dingisisa ngengxaki eziphathelane lokwezempilakahle
>> o Dingisisa imigoqo ephathelane ngenkolo zesigaba
>> o Dingisisa izizatho eziphathelane labemuli kanye labaseduze lowesifazana

1o. Yikuphi ongafisa kwenziwe ngcono ngohlelo lokuhlolwa kukhangelwa imvukuzane yomlomo wesibeleltho kulesisiqinti seGwanda?

> ➤ Dingisisa indlela omama abafisa izinto zenziwe ngazo ukuze kube lula ukufinyelela ukuhlolwa

Ngiyabonga ukwamukela ukuthi sixoxisane. Kungaba lemibuzo elilayo kumbe ukwengeza kulokhu esikhuleme ngakho?

Appendix 19: In-depth Interview Guide - English Version

Barriers to cervical cancer screening in Gwanda district, Zimbabwe: A mixed method analysis

<u>Introduction</u>

My name is Fennie Mantula, a PhD student from Stellenbosch University. I would like to ask you some questions about cervical cancer and screening practices among women in Gwanda district. As you will recall the purpose of the study is to identify barriers that prevent women in the district from accessing screening services. Your opinion is very important as it could help find ways to address those barriers to improve the cervical cancer screening programme in the future.

Your participation is completely voluntary, and you can choose not to participate in part or at all in the project. You may refuse to answer any question you feel uncomfortable with and you can withdraw at any stage without being penalised or disadvantaged in any way. Any information that you provide is strictly confidential. Your privacy will be protected, and full steps will be taken to ensure anonymity. Whatever you say will not be linked to your name so feel free to express your honest opinion and make suggestions. The discussion should take about 45 minutes.

I would like to record the interview session so that I do not lose any important information that will come up during the session. Please speak loudly so that I will not miss out on anything you say. I want to assure you that the recording will not be used for any other purpose other than this study and will not be accessible to anyone else other than the research team. You can verify your comments and responses after the recording before the final inclusion. I will transcribe all the information from the recorder and the audio-recordings will be destroyed at the end of the study. You may let me know if you do not want to be audio recorded. If that is the case, I will have to take notes of all that you will say.

Thank you for your willingness to participate in this study. Do you have any questions or concerns before we begin?

Personal Information

Participant ID………………………Site ID……………………………………………….

Work position………………………Interview Date………………………………………

Time started………………………Time completed……………………………………….

1. Could you tell me about your experience in the cervical cancer screening programme?

 ➢ What is your position within the health system?
 ➢ How long have you been involved in the cervical cancer screening programme?
 ➢ What are your responsibilities in relation to cervical cancer screening services?
 ➢ Have you received training on cervical cancer screening?

2. What are your views on cervical cancer in relation to this community?

 ➢ Cervical cancer prevalence in the district
 ➢ Community knowledge and perceptions about cervical cancer
 ➢ Women's knowledge on cervical cancer prevention

3. What cervical cancer screening services are available in the district?

4. What are your views on women's behaviours in relation to screening?

 ➢ Prevalence of screening
 ➢ Women's awareness of the screening services available in the district
 ➢ Perceptions about screening

5. Could you tell me about the general practices relating to cervical cancer screening in the district?

 ➢ National cervical cancer prevention and control guidelines
 ➢ Feasibility of implementing the policy
 ➢ Institutional cervical cancer screening standard operational procedures
 ➢ Strategies used to reach and motivate eligible women for cervical cancer screening

6. Why do you think women in the district do not adequately utilise cervical cancer screening services?

 ➢ Health system factors
  o Community health education on cervical cancer and screening
  o Access to screening services
  o Health system capacity to carry out screening
  o Who provides VIAC screening? Follow up and treatment of abnormal conditions
  o Cultural appropriateness of screening test for clients
 ➢ Individual factors
 ➢ Socio-cultural factors
 ➢ Interpersonal factors

7. How do you think these barriers can be overcome?

 ➢ Probe on existing strengths and facilitators that can be incorporated into the programme
  Thank you for participating in this study. Is there anything else you would want to comment on?

Appendix 20: In-depth Interview Guide – Ndebele Version

Izenqabelo ezenza abesifazana besiqinti se Gwanda kwele Zimbabwe behluleke ukufinyelela uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane: Uphenyo oluhlanganisa indlela ezehlukeneyo zokuhlaziya.

<u>**Isingeniso**</u>

Mina ngingu Fennie Mantula, isifundi semfundo yaphezulu e Stellenbosch University. Ngifisa ukukubuza mayelana lomkhuhlane wemvukuzane yomlomo wesibeletho lendlela abesifazana kulesi siqinti abemukela ngayo uhlelo lokuhlolwa. Injongo yalolu phenyo iyikudinga imigoqo evimbela abesifazana ukuba bafinyelele uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane. Imibono yakho iqakathekile kakhulu kithi ngoba lokhu kungasincedisa kumizamo engenziwa ukukhupha leyo migoqo okuzakwenza uhlelo lungconoziswe.

Ukuphatheka kwakho kule ingxoxo akubanjwa ngamandla, njalo ungakhetha ukungabi yingxenye kukho. Ukhululekile ukukhetha ukungaphenduli umbuzo ongakhululekanga kiwo, kantike ungazikhupha kulokhu kuxoxisana loba yisiphi isikhathi kungeke kukuphambanise ngalutho. Konke esizakukhuluma lapha kuzagcinakala ngendlela ephakemeyo. Imizamo yonke yokuthi ibizo lakho lingahlanganiswa lalokho ozakukhuluma izakwenziwa. Uyacelwa ukuba ukhululeke ukukhuluma ngeqiniso lonke konke okusemkhumbulweni wakho. Ukuxoxa okujulileyo lokhu kungathatha imizuzu engaba ngamatshumi amathathu kusiya kwamane lanhlanu.

Ngifisa ukuthatha ilizwi lakho ngesikhathi sikhuluma ukwenzela ukuthi ngingalahlekelwa ngokuqakathekileyo kulokhu esizabe sixoxa ngakho. Ngicela ukhulumele phezulu ukuze kungabikhona okuzangeqa. Ngithanda ukukunika isiqiniselo sokuthi konke okukumathathamazwi akusoze kusetshenziswe kokungaphathelananga lalolu phenyo, njalo akusoze kufinyelelwe ngomunye umuntu ngaphandle kwalabo abaphathelane lo phenyo. Ulakho ukulalela kumathatha mazwi ukuba ube lesiqiniselo sokuthi lokho okukhulumileyo kuyikho ngempela anduba kusetshenziswe. Ngemva kwengxoxo yethu, ngizalalelelisisa kumathathamazwi konke ebesikukhuluma, besengikubhala phansi kunjengokuba kunjalo. Ngemva kwesikhathi esifaneleyo uphenyo lolu soluphelile njalo ngendlela efaneleyo, konke okuyabe kukumathathamazwi kuza lahlwa. Nxa ungafisi ukuthathwa ilizwi, ungazise ukuze ngibhale phansi ozakukhuluma. Siyabonga ukuvuma kwakho ukuphatheka kululuchwayisiso. Kungabakhona ofisa ukukubuza singakaqalisi ukuxoxa na?

Okuphathelane lophendulayo

Inombolo emele ophendulayo…………………Umsebenzi wophendulayo……………………

Indawo lapho osebenzela khona……………………………….Usuku………………………….

Isikhathi sokuqala…………………………………Esokuqeda……………………………………

Imibuzo:

1.Uphatheke ngayiphi indlela kuhlelo loku hlolwa komlomo wesibeletho kukhangelwa imvukuzane?

- ➢ Ulesikhundla bani kulinhlanganiso?
- ➢ Usulesikhathi esinganani uphatheke kulomsebenzi othintana lohlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane?
- ➢ Okuyikho okwenzayo okuphathelane lohlelo lolu kuyini?
- ➢ Usuke wathola ukuqeqeshiswa kokuphathelane lohlelo lokuhlolwa na?

2.Ulemibono bani ngomkhuhlale wemvukuzane yomlomo wesibeletho nxa sikhangela isigaba lesi?

- ➢ Ukuthi lumkhuhlane wande okungakanani kulesi sigaba
- ➢ Ukuba umphakathi ulolwazi olunganani njalo ucabanga njani ngalumkhuhlane
- ➢ Ulwazi mayelana lokuhlolwa kwabesifazana

3. Kusetshenziswa ziphi indlela zokuhlola imvukuzane yomlomo wesibeletho kulesi sigaba?

4. Ulemibono bani mayelana lokuphatheka kwabesifazana ekuhlolweni?

- ➢ Ukuhlolwa kungabe kuthathelwa phezulu okunganani?
- ➢ Abesifazana balunanzelela kanganani uhlelo lokuhlolwa kulesisiqinti na?
- ➢ Bacabanga kanjani abesifazana ngokuhlolwa?

5. Ungangitshelani ngendlela uhlelo oluqhutshwa ngalo kulesisiqinti?

- ➢ Izimiso zelizwe mayelana lendlela uhlelo okumele luqhutshwe ngayo
- ➢ Ukulandeleka kwalezo zimiso
- ➢ Izimiso zesisibhedlela okuhlolwa khona mayelana lohlelo
- ➢ Amasu okufinyelela lokukhuthaza abesifazana ukuthi bahlolwe

6. Ngokucabanga kwakho, kuyini okwenza abesifazana kulesisiqinti behluleke ukufinyelela uhlelo

lokuhlolwa na?

- ➢ Okuphathelane lokwezempilakahle
    - o Izifundo eziphathelane lomkhuhlane wemvukuzane yomlomo wesibeletho kanye lo hlelo lokuhlolwa ezinikwa abantu esigabeni
    - o Ukufinyeleleka kohlelo
    - o Ukwenelisa kwabezempilakahle ukuthola indingeko eziphathelane lokuqhuba uhlelo lokuhlola kungelahlupho
    - o Ngubani ohlolayo?
    - o Indlela zokulandela lokwelapha abayabe bebe lempumela enganhle
    - o Ukwamkeleka kwendlela yokuhlola nxa sikhangela inkolo zabantu
    - o Okuphathelane lowesifazana ngokwakhe
    - o Okuphathelane lamasiko abantu
    - o Okuphathelane lalabo abagudlana lowesifazana ngendlela eseduze
    - o

7. Ngokubona kwakho, kuyini okungenziwa ukuze abesifazana bakulesisiqinti bathathele phezulu uhlelo lokuhlolwa komlomo wesibeletho kukhangelwa imvukuzane?

> Dingisisa ngenhlelo ezivele zikhona ezingabambisana lalolu olokuhlolwa komlomo wesibeletho kudingwa imvukuzane ukuze luphakamiseke

Ngiyabonga ukwamukela ukuphatheka kulokhu kuxoxisana. Kungabe kulokunye ongafisa ukungabela khona phezu kwalokhu esesikukhulumile?