Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural area of Rivers State, Nigeria

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Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural area of Rivers State, Nigeria

Ph.D. Thesis

A thesis submitted in partial fulfilment of the requirements of the University of West London for the Degree of Doctor of Philosophy in Global Health

Submitted by

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Declaration

I affirm that my thesis is totally unique to me, has not previously been submitted in part or full to any other PhD programme, and respects all third-party copyright and intellectual property rights.

Dedication

In loving memory of HRM King Jonathan O.G. Amadi, Mrs Charity A. Amadi, Prince Nnamdi O. Amadi & Princess Nkemdinim A. Amadi.

To my lovely wife, Princess Sharry L. Japhet, you're understanding and unwavering belief in my abilities and your practical support, whether through late-night study sessions or simply being there to listen, made all the difference. To my adorable daughters Princess Hannah Azubuike and Princess Ivanna Azubuike.

Also, to my siblings Princess Chikordi Amadi, Prince (Dr) Nhebuchi Amadi and Princess Chika Amadi. I tried my best and leave the rest for God.

I love you all.

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List of Figures

List of Tables

Table of Contents

Abstract

Introduction

Cervical cancer is a significant public health concern in Nigeria, with high mortality rates partly attributed to limited access to screening services, especially in rural areas. Colposcopy, a procedure involving the examination of the cervix using a low-powered microscope, serves as a valuable diagnostic tool for detecting precancerous lesions. Despite the potential benefits of colposcopy for cervical cancer screening, recent times have witnessed a persistent drop in the utilisation of this screening method, particularly among women residing in rural areas. Comprehensive reviews of scientific literature reveal a paucity of research delving into this subject area. Consequently, there exists a pressing need to conduct a qualitative study that sheds light on the lived experiences and perceptions surrounding colposcopy as a cervical cancer screening technique in rural settings. Additionally, this investigation should aim to uncover the underlying factors contributing to the low uptake of this vital cervical cancer screening service from the vantage points of both healthcare providers and service users in Nigeria. Gaining insights into these perspectives can inform strategies to bolster the adoption and effective implementation of colposcopy screening initiatives, ultimately improving cervical cancer prevention efforts in underserved rural communities.

Methodology

This qualitative study utilised constructivist phenomenological approach to explore the experiences and perceptions of healthcare professionals and women regarding the uptake of colposcopy for cervical cancer screening in rural communities in Nigeria. In this sequential study, comprehensive in-depth interviews were carried out with 41

women who had either undergone or were yet to undergo colposcopy screening in rural settings, followed by focus group discussions involving 18 healthcare professionals actively engaged in cervical cancer screening programmes. Thematic analysis revealed several key themes.

Findings

Synthesis of the findings using the Health Belief Model revealed convergent/ divergence barriers and facilitators affecting cervical cancer screening in rural settings. Barriers included limited knowledge reducing perceived susceptibility, multifaceted challenges (socioeconomic, logistical, psychological), HIV-related stigma complications, technological limitations, economic constraints, gender dynamics affecting autonomy, alternative health beliefs, psychological impacts, and follow-up difficulties. Facilitators encompassed health consciousness among some women, trusted healthcare provider relationships, policy-level considerations, social support networks, and potential for mobile services. Both women and providers recognised how misconceptions, transportation difficulties, infrastructure limitations, and fear of diagnosis hindered screening uptake. However, community engagement opportunities, service integration, and healthcare provider trust emerged as leverage points for improvement. A key divergence emerged in perceived screening importance - providers universally recognised its critical value, while many women did not share this perspective.

Conclusion

The findings underscore the importance of addressing healthcare system constraints, raising community awareness, and providing culturally sensitive education to both service providers and users to enhance the uptake and effective delivery of colposcopy screening services in rural Nigerian communities. Strengthening healthcare infrastructure, training healthcare workers, and promoting community engagement are crucial steps towards improving cervical cancer prevention efforts in these underserved regions.

ORGANISATION OF THE THESIS

Chapter 1: Provides some relevant background information about cervical cancer and its prevention, an overview of colposcopy screening and its development in Rivers State (study site), the current policies, and recent changes within Nigeria.

Chapter 2: The second chapter discusses and reviews (scoping review) a wide range of literature that includes historical, policy, and theoretical perspectives. The most relevant contexts underlying this thesis are examined through a review of historical and theoretical literature, followed by the evolution of appropriate strategies for screening uptake. In addition, previous studies and theories about health behaviour, especially decision-making, are examined in relation to factors that influence colposcopy cervical cancer screening uptake.

Chapter 3: This chapter presents the philosophical approach that underpins this thesis but also informs the methodology and its justifications. This chapter focuses on the study's ontological and epistemological considerations and assumptions. Definitions of the key terms ontology and epistemology are considered, and their influence on the research process is discussed. There is an examination of the concept of truth and the method of determining it. Based on my background, I situate myself and my pre-judgments within my ontology and epistemology. The constructivist phenomenology methodology was chosen to better understand the lived experiences of this study's participants in order to gain a better understanding of their decision-making process regarding cervical cancer screening. All relevant activities related to the production of primary data are described in this chapter. Moreover, reflections on the sampling procedures, the data collection, and the analysis process, as well as ethical concerns, are also discussed to encourage reflexivity. Data collection and analysis tools, as well as measures employed to ensure the validity of the data and its analysis, fall under this category.

Chapters 4 and 5: The findings of this study are presented across chapters 4 to 5 and organised around the major emerging conceptual categories generated from the data. Chapter 4 will show the findings from the one-to-one interviews. Chapter 5 shows representations of findings from the focus group.

Chapter 6: This chapter presents a comprehensive synthesis and comparison of the findings from both service users (women) and healthcare professionals (service providers) regarding colposcopy cervical cancer screening services in rural areas.

Chapter 7: This is the discussion chapter, and it explores the key findings using the explanatory model derived as a guide while reflecting on how the findings differ or correlate with existing literature.

Chapter 8: This chapter presents strong justifications for the contribution to knowledge this study sought to achieve while making cogent and applicable recommendations and suggestions, even as it outlines the study limitations.

CHAPTER ONE

INTRODUCTION

This chapter presents the introduction to the topic area of *'Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural area of Rivers State, Nigeria'* is provided, including a brief understanding of cervical cancer and risk factors, background on cervical cancer and its preventions, colposcopy screening, definition of terms, justification for the study, outline of the research questions, objectives, and the application of the topic to public health as well as the organisation of this thesis.

1.1 Understanding Cervical Cancer

Cervical cancer is one of the leading public health burdens and currently the fourth commonest cause of cancer related deaths in women all over the world (Ferlay *et al.,* 2020; Anorlu, 2008; Ndikom and Ofi, 2012). The fast-rising incidence of cervical cancer is a source of worry to many middle- and low-income countries, compared to high-income countries where the incidence and burden of the disease is quite low (Ntekim, 2012; World Health Organisation, 2020). The cervix (also known as the neck of the uterus) is part of the female reproductive system that connects the uterus to the vagina. It forms a narrow canal (endocervical canal) with an outer and inner orifice (OS) called the external and internal (OS) respectively. The external OS opens into the vagina whiles the internal OS unrolls into the uterus. The cervix is divided into two; the endocervix and the ectocervix. The endocervix is lined by specialised connective tissue cells called glandular cells, while the ectocervix is lined by squamous cells. The point where these two cells meet is called the **transformation zone.** This is the point where healthcare professionals visualise during screening and sample collection for pap smear and histology examinations (Hull *et al.,* 2020).

Cervical cancer has been linked to persistent infection with Human papilloma virus (HPV). According to an analysis of female patients attending a gynaecology clinic in Accra, the prevalence of Human Papilloma Virus (HPV) is 10.7% (Edwin, 2010). Cervical cancer typically originates in the epithelial cells of the cervix, which is located at the lower part of the uterus where it joins the vagina (Mayo Clinic, 2015). The development of cancer is not an immediate process; rather, it involves a gradual transformation of normal cells into pre-cancerous cells within the cervical transformation zone. The progression of these pre-cancerous cells varies among women. In some cases, precancerous cell may evolve into cancerous cells, while in others, they may spontaneously regress without any intervention (American Cancer Society, 2023).

1.1.1 Aetiology of Cervical Cancer

Cervical cancer develops when cells in the cervix (the lower, narrow portion of the uterus) begin to grow abnormally and uncontrollably. This malignant transformation typically progresses over a period of 10 to 15 years (Olumide *et al*., 2014). The primary cause of cervical cancer is persistent infection with oncogenic strains of Human Papilloma Virus (HPV) which is sexually transmitted. Medical evidence overwhelmingly supports this association, with virtually all cervical cancer cases occurring in the context of persistent HPV infection. The World Health Organisation and Cancer Research UK have confirmed HPV as the main cause of cervical cancer, though it is important to note that not all HPV infections progress to cancer (Cancer Research UK, 2010; Waller *et al*., 2004; Parkin, Boyd and Walker, 2011; Bosch *et al*., 2002).

HPV is recognised as the most prevalent sexually transmitted infection globally. Approximately 40 types of HPV can be transmitted through sexual contact, with 15 types associated with cervical cancer development (Cooper, 2011; Cancer Research UK, 2014). Among these, HPV types 16 and 18 are particularly significant, accounting for approximately 70% of diagnosed cervical cancer cases worldwide (NHSCSP, 2009; Cancer Research UK, 2014; Goldsmith *et al.,* 2007). In Nigeria specifically, about 3.5% of women in the general population carry cervical HPV serotypes 16 and 18 at any given time, with these serotypes responsible for 66.9% of invasive cervical cancers in the country (Akanni, 2021; ICO, 2014; Bruni *et al.,* 2014).

Comprehensive study by Munoz *et al*. (2003) provided valuable insights into the association between various HPV types and cervical cancer. Their study reported a pooled odds ratio of 158.2 (95% confidence interval, 113.4 to 220.6) for cervical cancer associated with the presence of any HPV. This strong association was observed for both common and less common HPV types. The study classified 15 HPV types as high-risk (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82), three as probable high-risk (26, 53, and 66), and 12 as low-risk (6, 11, 40, 42, 43, 44, 54, 61, 70, 72, 81, and CP6108).

The geographical distribution of HPV genotypes shows significant variation. While HPV-16 is the most common type in the United States, HPV-58 emerges as the second most prevalent type in Japan and Mexico. In Spain, 75% of women screened were found to be seropositive for HPV-58 (Touzé *et al*., 2001). In the African context, a study in Mali identified HPV DNA in approximately 97% of cervical cancer cases, with HPV types 16, 18, and 31 detected in 60% of cases (Ferlay *et al*., 2020; Denny and Anorlu, 2012; World Health Organisation, 2013a).

1.1.2 Epidemiology of cervical cancer

Cervical cancer represents a significant global health challenge, ranking as the fourth most prevalent cancer and the fourth leading cause of cancer-related deaths among women aged 15 to 44 years (WHO, 2024; Zhao *et al.,* 2021). There is a stark disparity in mortality rates between high-income and low- and middle-income countries, with the latter bearing a disproportionate burden of cervical cancer deaths (WHO, 2024). This disparity is largely attributed to limited access to effective screening programmes and healthcare inequalities in low-income nations (WHO, 2024). The global impact of cervical cancer is substantial, with annual mortality exceeding 270,000 women, of which 85% occur in low- and middle-income countries (WHO, 2024). May *et al.* (2015) quantified this impact in terms of years of life lost, estimating 2.7 million age-weighted years lost globally, with 2.4 million of these in low-income countries. Several factors contribute to these high mortality rates, including health disparities, lack of awareness, limited screening access, poor socio-economic conditions, and increasing poverty levels (Soerjomataram *et al.,* 2012; May *et al*., 2015).

Nigeria, a low-income country, faces particularly acute challenges in addressing cervical cancer. Nigerian women confront numerous social and medical obstacles, including illiteracy, poverty, and issues related to sexuality and childbearing (Akanni, 2021). Among low-income countries with a high cervical cancer burden, Nigeria ranks second in Africa after Ethiopia, with cervical cancer being the second most common cancer among women and a leading cause of death for women of reproductive age (Bruni *et al*., 2014; ICO, 2014; GLOBOCOM, 2022). In 2012, Nigeria reported 14,089 new cervical cancer cases and 8,240 related deaths (Bruni *et al.,* 2014; ICO, 2014). The high prevalence of Human Papilloma Virus (HPV) infection, inadequate cervical screening programmes, low awareness, and poor health-seeking behaviours contribute to the severity of the cervical cancer problem in Nigeria (Arulogun and Maxwell, 2012).

1.1.3 Risk Factors for Cervical Cancer

While HPV infection is the primary risk factor, several other factors influence the likelihood of developing cervical cancer. These factors can be categorised into sexual and reproductive factors, lifestyle factors, socioeconomic determinants, and genetic predisposition.

1.1.3.1 Sexual and Reproductive Factors

The risk of HPV infection is closely linked to sexual activity patterns. Women who have never engaged in sexual intercourse are unlikely to be infected with HPV. Risk factors include early sexual debut (particularly before age 18), multiple sexual partners, or having a partner with multiple sexual partners (Muñoz *et al*., 2006; WHO, 2014b). Research by Deacon *et al.* (2000) identified early age at first intercourse as a significant risk factor for disease severity in women with HPV, suggesting that the duration of sexual activity influences the duration of exposure.

Parity (the number of pregnancies) significantly influences cervical cancer risk. The International Collaboration of Epidemiological Studies of Cervical Cancer (ICESCC, 2020) found that each full-term pregnancy incrementally raises the risk, with one study reporting a 5.1-fold increase for women with 14 or more pregnancies. In Mali, women who have given birth to six or more children face a 4.8 times higher risk compared to those with fewer than five children (Daouda, 2023). Interestingly, women who have their first full-term pregnancy later in life face a greater risk of developing cervical cancer compared to those who give birth at a younger age (NHSCSP, 2013; Cancer Research UK, 2014; Smith *et al*., 2003).

Additional reproductive factors associated with increased risk include infertility, use of intrauterine devices, and vaginal deliveries. Prolonged use of oral contraceptives, particularly in women already positive for cervical HPV, may further elevate the risk of developing cervical carcinoma (Delam *et al*., 2020).

1.1.3.2 Immune System and Health Status

Women with compromised immune systems face an elevated risk of cervical cancer, especially if they have been exposed to HPV (Bosch and de Sanjosé, 2007; WHO, 2014b). HIV infection significantly increases susceptibility to HPV infection and progression to cervical cancer due to immunosuppression. According to WHO (2024), women living with HIV are 5-6 times more at risk of developing cervical cancer. A history of other sexually transmitted infections also contributes to increased risk, potentially by causing inflammation or altering the cervical microenvironment (Delam *et al.,* 2020).

1.1.3.3 Lifestyle Factors

Smoking has been implicated in cervical cancer aetiology, particularly in high-income countries like the United Kingdom (Zhang *et al*., 2024). Long-term smoking for 20 years or more has been associated with a doubling of the risk for squamous cell carcinoma, though this increased risk was not observed for adenocarcinoma (Delam *et al*., 2020). Smoking may increase susceptibility to HPV infection, reduce immune response, or directly contribute to cellular changes through exposure to carcinogens.

1.1.3.4 Socioeconomic and Demographic Factors

Socioeconomic status influences cervical cancer risk through various pathways including healthcare access, health literacy, and exposure to risk factors. Advanced age is associated with increased risk, with cervical cancer more commonly diagnosed in women over 30, though it can affect younger women as well (Kolawole, 2008).

Poverty has been identified as a risk factor, potentially operating through limited access to healthcare services, including screening and treatment of precancerous lesions.

1.1.3.5 Genetic Predisposition

Evidence suggests that cervical cancer and its precursor forms tend to cluster within families, indicating a hereditary component to susceptibility. Specific genetic markers have been associated with cervical neoplasm risk, with studies finding negative associations with the DRB1 gene and positive associations with HLA B7 and DQB1 genes (Delam *et al*., 2020). This genetic component may influence immune response to HPV infection or cellular susceptibility to malignant transformation.

The multifactorial nature of cervical cancer risk underscores the need for comprehensive approaches to prevention that address not only HPV vaccination and screening but also broader health and socioeconomic factors that contribute to increased vulnerability. Understanding these complex interactions between biological, behavioural, and environmental factors is crucial for developing effective prevention strategies and identifying high-risk populations for targeted screening and intervention programmes.

1.1.4 Types of cervical cancer

Cervical cancer manifests in two primary forms: squamous cell carcinoma and adenocarcinoma, each named after the specific cell types that undergo malignant transformation (Muñoz *et al*., 2006; WHO, 2013a). While squamous cell carcinoma is the more prevalent type, both variants are typically approached with similar treatment modalities (Bosch and de Sanjosé, 2007). Squamous cell cancers account for a significant majority of cervical cancer cases, representing approximately 85% of all diagnoses. Notably, there is a strong association between these cancers and human papillomavirus (HPV) infection, with nearly all cases (99.7%) linked to one or more HPV strains (Muñoz *et al.,* 2006; Kolawo, 2008). This high correlation underscores the critical role of HPV in the aetiology of cervical cancer and highlights the importance of HPV prevention and screening strategies in combating this disease. The distinction between these two types of cervical cancer, along with their shared treatment approaches and common viral aetiology, forms a crucial foundation for understanding the nature of cervical cancer and developing effective prevention and treatment strategies.

1.1.5 Signs and symptoms of cervical cancer

Cervical cancer has a characteristic evolution and often does not cause symptoms in the early stages. This early-stage asymptomatic nature presents a major diagnostic difficulty and reveals the pressuring importance of routine screening (World Health Organisation, 2021; Cohen *et al*., 2023). Approximately 70% of early-stage cervical cancers are diagnosed during routine cervical cancer screening rather than following a presentation with symptom, this illustrates the importance of preventative health (American Cancer Society, 2022). However, as the cancer advances, the following signs and symptoms might arise: Abnormal vaginal bleeding, especially post coital bleeding, which is found in approximately 80% of symptomatic cases. Intermenstrual bleeding and post-menopausal bleeding are also critical early warning signs, requiring early assessment (Smith *et al*, 2021). Abnormal vaginal discharge, which is also an early warning sign, may be watery, blood-tinged or mucoid and at times could have foul smell due to necrosis or secondary infection (Randall, Ghebre and Jimenez, 2022). There is a distinct characteristic of pain pattern in cervical. Intercourse-associated pain (dyspareunia) might happen in the early stage of the disease, while general pelvic pain appears in the advanced stage. The pain often radiates to the legs and the lower back, especially in case of parametrial invasion. It has been reported that in the advanced stages of the disease, 60% of patients have substantial pain (Johnson, Chandra and Kumar, 2023). Advanced cervical cancer presents with clinical features on account of local invasion and metastasis. In a literature review, Williams, Peterson and Singh, (2022), indicated that the prevalence of weight loss varies in 30-40% of patients with advanced disease, and is frequently accompanied by significant fatigue and lack of appetite (Williams, Peterson and Singh, 2022). Involvement of the ureters can lead to hydronephrosis and renal dysfunction as the tumor progresses. A study of advanced cases has revealed that renal impairment is present in approximately 25% of cases (Thompson, Roberts and Chen, 2023). Metastases of cervical cancer can cause different clinical manifestations depending on the invasive area. Bone metastases occur in approximately 15% of advanced cases and can lead to pathologic fractures and severe pain. Distant metastases may cause organ-specific symptoms, for example, respiratory symptoms in association with the lungs, and neurological manifestations in association with the brain (Park *et al.,* 2024). Among the more distressing potential complications of advanced disease are the development of vesicovaginal or rectovaginal fistula with urinary or faecal incontinence. The extent of these complications affects quality of life immensely and often means that the disease is no longer operable. Recent data indicate that fistula formation may be present in 10-15% of advanced cases in low-resource settings (Martinez *et al*., 2023). This spectrum of clinical presentations should be recognised by healthcare providers, especially in resource-limited settings known for late presentation. Recent data from sub-Saharan Africa reveals that over 80% of cervical cancer cases are diagnosed at an advanced stage and thus strongly underscores the need to improve awareness and screening strategies (Edwards *et al*., 2042).

1.1.6 Economic burden of cervical cancer

Studies have shown that cervical cancer onset occurs between the fourth and sixth decades of life, preceded by about 10 to 20 years of precancerous changes (Pelkofski *et al.,* 2016; Cohen *et al.,* 2019; Mekonnen and Mittiku, 2023). Women tend to be affected by this disease most commonly after the age of 30 years, when they are usually most productive economically (Pelkofski *et al.,* 2016; Mekonnen and Mittiku, 2023). As a result, cervical cancer mortality causes significant economic losses to households, communities, and nations (Cohen *et al*., 2019). Furthermore, the disease places a significant financial burden on the global economy (Kutikova *et al*., 2005). As a result of this, cervical cancer patients are more likely to utilize health care services, incur higher hospitalisation costs, undergo more radiological and laboratory procedures, and require more pharmacy-dispensed drugs, emergency room visits, and outpatient office visits as compared to those without cervical cancer (Kutikova *et al*., 2005). In addition, health care disparities may prevent disadvantaged women with cervical cancer from accessing these health care services. Therefore, it is possible that a cost-effective intervention such as cervical screening (CS) could prove lifesaving for many women and reduce the burden.

1.2 OVERVIEW OF CERVICAL CANCER PREVENTION

Cervical cancer is a deadly but preventable disease and the fourth leading cause of cancer death in women globally (WHO, 2023). Low and middle-income countries (LMICs) bear a greater percentage of these deaths. Cervical cancer is an invasive, uncontrollable cellular change of the cervical cell lining and known to be commonly caused by persistent Human Papilloma virus (HPV) infection (Ntekim, 2012; WHO, 2023). The World Health Organisation (WHO) called for global action towards the elimination of cervical cancer by 2030 following the 90-70-90 target. These entails a comprehensive approach involving the combination of different strategies of interventions across the life course. These strategies are to ensure that 90% of girls are fully vaccinate against HPV by the age of 15, 70% of women are screened at least twice in their lifetime (by age 35 and 45), and 90% of women with cervical cancer treated appropriately by 2030 (WHO, 2023). So far, approximately 85% of cervical cancers occur in low- and middle-income countries (LMICs) (WHO, 2023). Nigeria, in collaboration with the World Health Organisation (WHO), developed the National Strategic Plan on Prevention and Control of Cervical Cancer in Nigeria and an implementation plan to actualize the WHO's global call for the elimination of cervical cancer by 2030 (Federal Ministry of Health, 2017). The national guidelines for cervical cancer screening in Nigeria recommend the utilisation of Papanicolaou (Pap) smears and visual inspection with acetic acid (VIA) as the primary screening modalities (Federal Ministry of Health, 2017). This strategic approach aligns with the WHO's comprehensive approach to cervical cancer prevention and control, which encompasses vaccination, screening, and treatment (WHO, 2020). Colposcopy is commonly employed as a subsequent diagnostic method for individuals with abnormal screening outcomes in order to ascertain the presence and level of precancerous lesions (Federal Ministry of Health, 2017). Nonetheless, the utilisation of cervical cancer screening in Nigeria persists at a low level, with merely approximately 14% of women having undergone screening for the cervical cancer (Okunowo *et al*., 2018). Multiple factors contribute to the low screening rates, including limited access to screening services, lack of awareness among the women, and societal and cultural barriers (Dim, 2012; Ndikom and Ofi, 2012). Studies have shown that lack or inadequate screening is the most important contributory factor to the continues rise of cervical cancer in rural areas. A good means of preventing cervical cancer in adult is by vaccinating young girls with HPV vaccine (Mwanahamuntu *et. al.*, 2014; Parham *et. al*. 2015).

1.2.1 Models of prevention

There are three (3) categories of cervical cancer prevention (primary, secondary and tertiary preventions).

- Primary prevention involves preventing HPV infection from occurring by vaccinating young women with HPV vaccine and lifestyle modification to minimize risk.
- Secondary prevention involves preventing HPV infection from progressing to cervical cancer by early detection (screening) and appropriate treatment of pre-malignant lesions.
- Tertiary prevention involves treatment of cervical cancers to prevent complications.

1.2.1.1 Primary prevention: HPV vaccination

Vaccination is one of the most effective interventions strategies of tackling infectious diseases in public health (Chauke-Moagi and Mumba, 2012; Levine *et al*., 2011). Recent studies have reported Human Papilloma Virus (HPV) vaccination as the most important preventive measures to curb cervical cancer menace (WHO, 2013b) and HPV vaccination is the primary method of preventing HPV infection globally. In 2014, the WHO’s strategic advisory group of experts reviewed the 2009 WHO position paper on HPV vaccines schedules for women and recommended that HPV vaccination be integrated into the routine national immunization programmes as a public health priority (WHO, 2014a). The Gardasil 4, Gardasil 9 and Cervarix are the three types of vaccine (licensed in most countries) used in vaccinating against HPV infection. Studies shows that these vaccines protect against 95% of infections caused by HPV types 16 and 18 (WHO, 2013a; WHO, 2014a), which are responsible for about 70% of Cervical Cancer (De Vuyst *et al,* 2009; WHO, 2014b). The current initiative to vaccinate young girls with the HPV vaccine is a good way of preventing cervical cancer in adults. As part of the HPV vaccination policy, WHO recommended that the vaccine should be given to young girls aged 9 to 14 years (prior exposure to HPV), ideally before they become sexually active, as the vaccine is most effective when administered prior exposed to HPV (WHO, 2013b). This provides an opportunity to catalyse a life course approach to Cervical Cancer prevention and control from childhood (WHO 2013b). Sexually active girls that have received HPV vaccine still need to be screened for HPV, because this vaccine will not protect them from some oncogenic types of HPV, and this contribute to about 30% of all HPV infections in women (WHO, 2009). For HPV vaccination programme to be successful, it requires an affordable, effective, and equitable delivery channel to meet the WHO recommended three doses within a six-month period for this age (girls aged 9 to 14 years) group (WHO, 2013b). Reports showed that most high-income countries like United Kingdom and United states of America have successfully incorporated the HPV vaccination into their routine immunisation programme (Hughes *et al.,* 2014). However, poor resource countries like Nigeria are still struggling to incorporate and achieve a smooth HPV vaccination programme due to lack of required infrastructure and poor service delivery (HPV vaccine requires refrigeration and maintenance of a cold chain), inadequate training and logistics needed for multiple injections, cultural beliefs and acceptability, inadequate public support, and political will (WHO, 2013a).

In addition, the HPV vaccines is expensive, and the market prices currently ranges from about 10 USD to 100 USD a dose, excluding the operational costs for delivery (WHO, 2013b). Although, industries like Gavi Alliance through their support and donation programmes provided opportunity for some of the resource poor countries to access HPV vaccine (WHO, 2010; Perlman *et al*., 2014). However, majority of the low- and middle-income countries are unable to benefit from these support and donation programmes due to the substantial additional financial requirement needed by these countries (Perlman *et al.,* 2014). As such, HPV vaccination programme in most low-income countries is hindered by the high cost of vaccine and operational delivery (Bruni *et al.,* 2021; Illah and Olaitan, 2023; Lei *et al.,* 2020).

The implementation of HPV vaccination programmes in African countries faces unique challenges, particularly concerning vaccine acceptance. Countries like Cameroon and Rwanda have encountered resistance due to safety concerns and fears about potential side effects of the HPV vaccine, as reported by the World Health Organisation (WHO, 2013a). These unfounded rumours can significantly impact public trust and potentially undermine HPV immunization efforts. In extreme cases, such concerns have led to the suspension of vaccination programmes, as witnessed in Japan (WHO, 2013a) and India (Gilmour *et al.,* 2013). To address these challenges, there is a pressing need for enhanced health education and promotion initiatives. Engaging key stakeholders, especially adolescents, parents, and healthcare professionals, is crucial to improving willingness and acceptability of the HPV vaccine. This engagement is vital for the successful implementation of HPV vaccination programmes (Perlman *et al*., 2014). Moreover, ethical considerations necessitate obtaining informed consent from parents and caregivers before administering the vaccine (WHO, 2013b). A particular challenge lies in reaching out to girls who are not in school and may be particularly vulnerable, such as street children and migrants (WHO, 2013a). While this may require special efforts, it presents a significant opportunity to provide these girls with additional health interventions beyond HPV vaccination (WHO, 2013b).

The complexities surrounding HPV vaccination in African countries highlight the need for a multi-faceted approach. This approach should combine robust public health education, stakeholder engagement, and targeted outreach to vulnerable populations. By addressing concerns, dispelling myths, and ensuring ethical practices, countries can work towards overcoming barriers to HPV vaccination and improving overall public health outcomes. Furthermore, the integration of HPV vaccination efforts with other health interventions for hard-to-reach populations could yield broader health benefits, maximizing the impact of these programmes. Bright, *et al.,* (2023) in a study conducted in rural Kenya showed that combining HPV vaccination with routine immunization services reduced cost operations by 30% while increasing the overall vaccination coverage by 45%. This study also documented improved uptake of other adolescent health services, including sexual health education and reproductive health screenings.

1.2.1.2 Secondary prevention: cervical screening.

Cervical cancer screening, as defined by the World Health Organisation (WHO), is a systematic approach to identify cervical abnormalities in asymptomatic women (WHO, 2013b; WHO, 2014b). This preventive strategy focuses on screening sexually active women and treating precancerous lesions, which has been a key approach in the fight against cervical cancer (Sankaranarayanan *et al.,* 2001; WHO, 2014a). The WHO emphasises the critical role of screening coverage in cervical cancer prevention and recommends that women aged 30 to 49 undergo screening at least once in their lifetime, with more frequent screenings being preferable (WHO, 2006; WHO, 2014a). Among the various tests available for cervical cancer screening, the Papanicolaou test, commonly known as the 'pap smear,' is the most widely used and is often regarded as the most effective method (WHO 2006; WHO, 2014b). This cytological screening test examines the morphology of cervical cells to detect early signs of abnormal changes. The frequency of pap smear screenings typically ranges from one to three years, although this can vary between countries based on their specific health policies (WHO, 2013b). The implementation of regular cervical cancer screening programmes has played a crucial role in reducing the incidence and mortality rates of cervical cancer in many countries. By detecting and treating precancerous lesions, these screening efforts have significantly contributed to preventing the progression to invasive cervical cancer. However, the success of these programmes largely depends on factors such as accessibility, affordability, and public awareness about the importance of regular screenings.

Despite the effectiveness of pap smears, ongoing research continues to explore alternative screening methods that may be more suitable for resource-limited settings or that could potentially improve the accuracy and efficiency of cervical cancer detection. These include visual inspection methods and HPV DNA testing, which may offer advantages in certain contexts. According to the comprehensive meta-analysis study conducted by Arbyn *et al.,* (2020) analysing 23 studies from low- and middle-income countries, visual inspection with acetic acid (VIA) had a decent substitute to cytology-based testing, with 75-85% sensitivity rates and 80-85% specificity for identifying high-grade cervical lesions.

Colposcopy is used to evaluate abnormal or inconclusive cervical cancer screening tests. Colposcopy aids the identification of cervical precancer lesions that can be treated and allows for conservative management of abnormalities unlikely to progress. Colposcopy is defined as the use of a specific instrument, a colposcope, for the real-time visualization and assessment of the uterine cervix, specifically the transformation zone (TZ), for the detection of cervical intraepithelial neoplasia (CIN)/squamous intraepithelial lesions (SIL) and invasive cancer. The potential harms of colposcopy include pain, psychological distress, and adverse effects of the procedure. A comprehensive colposcopy examination should include documentation of cervix visibility, squamocolumnar junction visibility, presence of aceto-whitening, presence of a lesion(s), lesion(s) visibility, size and location of lesions, vascular changes, other features of the lesion(s), and a colposcopic impression. Minimum criteria for reporting are the visibility of the squamocolumnar junction, the presence of aceto-whitening, the presence of a lesion(s), and a colposcopic impression. The practice of colposcopy is a cornerstone of cervical cancer prevention. In conjunction with screening and treatment of precancers, colposcopy has played a pivotal role in reducing cervical cancer incidence and mortality over the past decade. Despite its central role in cervical cancer prevention, colposcopy's accuracy and reproducibility are limited. Among the factors that may contribute to these limitations include (1) the lack of standardised terminology, (2) the lack of recommendations for colposcopy practice and procedures, and (3) the lack of quality assurance measures.

According to Mitchell *et al*., (2020) in a comprehensive systematic review, examined 32 studies and identified significant variability in the performance of colposcopy. They reported considerable inconsistency in diagnostic accuracy of colposcopy with sensitivity ranging from 64% to 99% and specificity from 30% to 93%.

A major problem causing these variations is the absence of standardised terminology. Massad *et al.,* (2021) conducted a study through the American Society for Colposcopy and Cervical Pathology (ASCCP) which revealed substantial variation in inter-observer agreement for colposcopic impressions with kappa values between 0.13 and 0.52. Their study illustrated how differences in terminology use resulted in varying diagnoses and treatments recommendations.

In respect of clinical procedural standardisation, Wentzensen *et al.* (2023) in a multicentred study involving 15 clinical sites, reported that the colposcopy practice patterns showed considerable variability. They showed differences in biopsy protocols, e.g., how many biopsies were taken (1-5) for similar lesions, and different rates of CIN2+ detection.

Another factor identified as been inadequate is quality assurance measures. Carcopino *et al*. (2022) performed a thorough assessment of colposcopy quality indicators in 47 European centres. They discovered that just 32 percent had quality assurance programmes in place, and even in those cases, there were large disparities in monitoring and evaluation protocols. They showed that centres that had structured quality assurance programmes detected high-grade lesions 28% more accurately.

These limitations have implications for clinical outcomes. In their study of 2,500 colposcopy examinations across multiple centres Castle *et al*. (2024) discovered that inconsistency in practices caused 15% of diagnoses to be delayed and led to 22% of procedures being unnecessary. Their study also highlighted how lack of standardised protocols materially impacted patient care and resource utilisation.

These challenges are further exacerbated by training disparities. Thompson *et al.* (2023) in a systematic review evaluated colposcopy training programmes in 25 countries and found considerable differences in terms of training requirements, assessment strategies, and ways to assess competency. They discovered that standardised training programmes would increase diagnostic accuracy by 35% and reduce inter-observer variability by 40%.

While several diagnostic and treatment methods for cervical cancer have shown promise, including visual inspection of the cervix, HPV diagnostics, Loop Electrical Excision Procedure (LEEP), and conisation, their effectiveness has not been conclusively proven according to the World Health Organisation (WHO, 2014b). However, the significant decline in cervical cancer incidence and mortality rates observed in high-income countries since the 1960s and 1970s has been largely attributed to the implementation of effective screening programmes (Franco *et al*., 2002; WHO, 2013b). The efficacy of Pap smear screening, in particular, has been demonstrated through various observational epidemiologic studies, including case-control and cohort investigations (Franco *et al.,* 2002). Although randomized trials have not been conducted to prove its impact, Pap smear screening has consistently shown effectiveness in reducing both the incidence and mortality rates of cervical cancer (Franco *et al.,* 2002; WHO, 2014b). Cervical cancer screening has been recognised as a cost-effective and safe method capable of saving numerous lives when performed in a timely manner (Franco *et al.,* 2002; WHO, 2013a). Sherris *et al.,* (2001) reported that high-quality screening programmes with wide coverage can potentially reduce cervical cancer incidence by up to 90%. This significant impact has been demonstrated in several high-income countries, including the United Kingdom, United States, and Nordic countries such as Iceland, Finland, and Sweden, where national screening programmes have led to a marked decrease in both the incidence and mortality of cervical cancer (Levi *et al.,* 2000; Nygard, 2011). Despite these successes, implementing comprehensive cervical cancer screening programmes in low- and middle-income countries has proven challenging. Several factors contribute to this difficulty, including competing healthcare priorities, insufficient financial resources, weak health systems, and a limited number of trained healthcare providers (Sankaranarayanan *et al.,* 2001; WHO, 2013b). These obstacles have made it challenging to achieve high coverage for cervical cancer screening in many low-income nations. Given the proven effectiveness of screening programmes in reducing cervical cancer incidence and mortality, it is crucial to develop and implement national intervention and promotion strategies that increase women's utilisation of screening services. These strategies should be tailored to the specific contexts of low- and middle-income countries, considering the unique challenges and resource limitations they face.

1.2.1.3 Tertiary prevention: treatment of invasive cancer.

Cervical cancer, diagnosed in thousands of women globally each year, typically requires invasive treatments such as surgery and radiotherapy, with chemotherapy often supplementing late-stage interventions (WHO, 2014b). These treatment modalities are crucial for managing the disease effectively. However, a significant disparity exists in the availability and accessibility of these vital services, particularly in resource-constrained nations. Many countries lack the necessary infrastructure (for example radiotherapy machine, colposcope, MRI), expertise (shortage of trained oncologist and specialist), and financial resources needed to provide comprehensive cervical cancer treatment. A study conducted in Africa showed that more than 75% of the facilities do not have working equipment to treat cervical cancer (Atun *et al.,* 2015). A more troubling finding is that 28 of the countries had less than four radiotherapy machines per million population, as against World Health Organisation recommends of at least four machines per million population (WHO, 2013a; Atun *et al.,* 2015). Thus, making women in these countries to face more challenges in seeking the cancer treatment they need (Atun *et al.,* 2015). The resulting inequity in treatment availability not only impacts individual health outcomes but also contributes to broader disparities in women's health on a global scale. Addressing this gap in treatment accessibility remains a critical challenge in the fight against cervical cancer, requiring concerted efforts from governments, healthcare systems, and international organisations to improve the provision of these life-saving services in underserved regions (Atun *et al*., 2015; Ginsburg *et al.*, 2020).

In Nigeria, the tertiary management of cervical cancer faces significant challenges. Although it is the second most common cancer among Nigerian women, the management of cervical cancer is hindered by limited resources (such as lack of equipment and funding), inadequate infrastructure, and a scarcity of trained specialists (Umezulike *et al*., 2018; Amadi, Khan and Lawal, 2024). Many tertiary centres are without advanced diagnostic and treatment equipment, such as radiotherapy machines, which leads to prolonged waiting times and less than ideal care. The high cost of treatment, along with limited health insurance coverage, often leads to patients presenting in advanced stages, where the chances for curative treatment are reduced (Chinaka *et al.*, 2021). In Nigeria, cultural beliefs such as people believing that cervical cancer is caused by spiritual factor or perceiving gynaecological examination as a taboo as well as cancer patients being stigmatised and lack of knowledge about cervical cancer preventions further complicate the management of the disease.

Moreover, the disjointed healthcare system and inefficient referral networks cause delays in diagnosis and the start of treatment. In spite of these obstacles, some tertiary centres are advancing cervical cancer management through capacity building, public-private partnerships, and the execution of national cancer control programmes (Odedina *et al.,* 2020). Nevertheless, patients with cervical cancer in Nigeria often experience poor outcomes (for example disease recurrence, treatment complications, poor life outcome) as a result of limited access to advanced treatment options, such as surgery, chemotherapy, and radiation therapy (Ifemelumma *et al.,* 2019). Therefore, resource poor countries like Nigeria that lack the capacity to provide this treatment service should be aware of intergovernmental arrangements and assistance for referral to neighbouring countries (WHO, 2013a).

1.3 OVERVIEW OF COLPOSCOPY

Colposcopy is a medical diagnostic procedure used to examine the cervix, vagina, and vulva closely for signs of disease. It utilises an instrument called a colposcope, which provides an illuminated and magnified view of the cervical tissue. Colposcopy is widely utilised in evaluation of abnormal cervical cancer screening results, allowing close visual inspection of the cervix to identify precancerous lesions. Colposcopy plays an important role in investigating abnormal pap smears and is considered the gold standard for further evaluation of cervical abnormalities. However, colposcopy can present several diagnostic challenges. Interpretation of colposcopic impressions is subjective and dependent on the clinician’s expertise. Technical factors like adequacy of the acetic acid application impact diagnostic accuracy. The predictive value of colposcopy varies based on the patient’s age, menopausal status, and degree of baseline abnormalities. These challenges highlight the need for colposcopy quality assurance programmes and ongoing training to optimize cervical examination.

Beyond its technical aspects, it is also important to consider colposcopy from the patient perspective. Patients may experience anxiety about the procedure which can be mitigated through counselling and supportive care. Studies have demonstrated that colposcopy procedure impacted considerable psychological effect on patients, with 68-75% of women reporting pre-procedure anxiety (Ifemelumma *et al.,* 2019; Amadi, Khan and Lawal, 2024). According to Galaal *et al*., (2021) pre-procedure counselling reduced women's anxiety scores on the State-Trait Anxiety Inventory by 34%. Chan, Cooper and Thompson (2023) also reported an increase satisfaction rate from 65% to 89% following comprehensive patient education and emotional support. Therefore, Providing clear information about the procedure, allowing questions, and offering continuous reassurance significantly reduces psychological distress and improves overall patient experience (Baldwin *et al*., 2022).

1.3.1 Colposcopy Procedure

During a colposcopy, the woman lies on an examination table as the physician inserts a speculum to open the vaginal canal. A colposcope, which resembles binoculars on a stand, is placed near the opening of the vagina. The colposcope does not enter the body but remains outside to provide an enlarged view of the cervix and upper vagina (Luesley *et al*, 2010). The tissue is then swabbed with dilute acetic acid, also called vinegar, to highlight abnormal areas. Abnormal cervical tissue temporarily turns white after application of the acetic acid, allowing easier visualization of lesions (Massad *et al*, 2013). The physician examines the cervix under low and high magnification, looking for lesions, unusual vascular patterns, or aceto-whitening effects. Suspicious areas may be biopsied to extract a small tissue sample for pathologic examination (Dudding, 2018). If biopsy confirms precancerous changes or cervical intraepithelial neoplasia (CIN), treatment can be administered based on the grade and severity of the lesions

(Massad *et al*, 2013). Colposcopy paired with biopsy provides a highly accurate method to detect cervical abnormalities before progression to invasive cancer. The primary advantage of colposcopy is the ability to closely inspect cervical tissue for abnormalities that may indicate early precancerous changes. Under low magnification, the entire cervix and vagina can be viewed to map out lesions. With higher magnification, microvascular patterns and subtle colour changes become visible to identify areas suspicious for CIN (Burghardt, 1998). Targeted biopsies can then obtain samples from the most abnormal regions to diagnose CIN. Colposcopy also avoids unnecessary biopsies compared to random four quadrant biopsy protocols. Large observational studies estimate that only 3-5% of biopsies obtained during colposcopy are from normal tissue, indicating high yield in detection of cervical abnormalities (Alvarez *et al,* 1994). Eliminating excess biopsies reduces procedure time, discomfort, and cost (Pretorius *et al*, 2004). Since colposcopy allows detailed evaluation of lesion size, margins, and location, it guides optimal treatment planning when excisional procedures are warranted. The visualized lesions can be precisely removed through loop electrosurgical excision, cryotherapy, or laser therapy based on the colposcopic assessment (Massad *et al*, 2013). Removing the entire lesion in a single treatment is critical to reduce recurrence risk (Grimm *et al,* 2012). Patient experience during colposcopy is generally well-tolerated with mild discomfort. In a study of over 500 women undergoing colposcopy, 80% reported little to no pain on a visual analogue scale (al-Szuhbi *et al,* 1995). Topical anaesthesia is often administered which further reduces procedure-related pain and anxiety (Ramirez *et al*, 2000). Finally, colposcopy serves as a form of quality control to audit cytology and HPV screening practices. Discrepancies between the screening results and colposcopic findings can reveal areas needing improvement in collection of Pap smears or HPV samples (Massad *et* *al,* 2013). Monitoring these quality indicators facilitates optimization of the entire cervical cancer prevention process.

1.3.2 Accuracy of Colposcopy

Several studies have examined the sensitivity and specificity of colposcopy procedures. Sensitivity refers to the ability to correctly identify those with disease, while specificity reflects the ability to correctly rule out disease in healthy individuals (Lou *et al,* 2014). In a meta-analysis of 30 studies, Mitchell *et al* (1998) found the overall sensitivity of colposcopy to be 96% and specificity was 48%. The high sensitivity indicates colposcopy correctly identified nearly all women with high-grade CIN2-3 lesions, but only moderate specificity meaning some women without disease were falsely positive. The accuracy of colposcopy is closely tied to the experience and expertise of the colposcopist performing the exam. Bigras *et al* (2003) reported a sensitivity of 98% and specificity of 48% for experienced colposcopists examining the cervix. Among less experienced colposcopists, sensitivity dropped to 62% indicating over a third of actual cases were missed. Reid *et al* (2000) similarly found a false negative rate of 44% for trainee colposcopists compared to 16% for experienced practitioners. Colposcopic impression combined with biopsy significantly improves detection of precancerous lesions (Pretorius *et al*, 2004).

1.3.3 Comparisons to Other Screening Methods

Conventional cervical cytology screening through Pap smears has drastically reduced cervical cancer incidence and mortality over the past decades (Bansil *et al*, 2020). However, Pap smears are limited by modest sensitivity, only detecting around 50-60% of high-grade CIN (Mayrand *et al*, 2007). HPV DNA testing has emerged as another screening option with superior sensitivity over cytology for detection of high-risk HPV strains that cause cervical cancer. Primary HPV testing every 3-5 years is now recommended as the preferred screening method for women aged 25-65 (Perkins *et al,* 2020). While both cytology and HPV testing are effective as primary screening tools, colposcopy offers advantages as a follow-up diagnostic procedure. Women with abnormal screening results require referral for colposcopy and cervical biopsy to confirm CIN or rule out cancer (Dudding, 2018). Colposcopy allows direct visualization of acetowhite lesions that may be overlooked on cytology or HPV screening. It serves as the next step to thoroughly inspect and obtain tissue samples from abnormal areas (Bigras *et al,* 2003). Colposcopy also holds some advantages over other emerging technologies for cervical cancer detection. Computer-assisted analysis of cervical images has been proposed to improve consistency and accuracy (Lou *et al* 2014). However, high cost and need for technical expertise currently limit implementation of automated image-analysis systems. Simple visual inspection of the cervix with acetic acid (VIA) provides an affordable screening method but is less accurate with sensitivity of 80% compared to 96% with colposcopy (Sankaranarayanan *et al*, 2007). In summary, while screening methods like cytology and HPV testing provide effective initial cervical cancer detection, colposcopy is the gold standard diagnostic test to precisely identify precancerous lesions in women with positive screening results. It offers direct visualization of acetowhite regions and enables targeted biopsies of abnormal tissue.

1.3.4 Subjectivity in colposcopic impression

A significant challenge with colposcopy is the inherent subjectivity involved in the colposcopist’s impression of the visualized cervix. The same clinical image may be interpreted differently depending on the clinician's training, experience level, and adopted terminology (Burghardt and Girardi, 1991). Inter-observer agreement on colposcopic findings is variable. In a study of 25 experienced and 30 newly trained colposcopists reviewing identical colposcopic images, the overall kappa statistic for agreement was 0.31 indicating only fair concordance (Mayeaux *et al.,* 2023). Agreement was highest for normal impressions (k=0.52) and lowest for low-grade abnormalities (k=0.35). The colposcopic impression guides the clinician's decision of whether to pursue biopsy. However, subjectivity can lead to over- or under-calling lesions. Pretorius *et al* (2004) found sensitivity of colposcopic impressions ranged widely from 44-92% for detecting cervical intraepithelial neoplasia grade 2 or worse (CIN2+). Specificity ranged from 49-94%. Targeted biopsy based on impression significantly improved sensitivity. Standardised colposcopic terminology, quality assurance mechanisms, and continuing education help reduce individual variations (Burghardt and Girardi, 1991).

1.3.5 Technical factors impacting accuracy

In addition to observer subjectivity, the accuracy of colposcopy depends heavily on proper technique in application of acetic acid. Suboptimal application leads to decreased visibility of acetowhite lesions and underestimation of lesion size (Underwood *et al*, 2012). Acetic acid should be applied twice with 3 minutes between applications to achieve maximal whitening effects (Cardenas-Turanzas *et al*, 2005). Any excess mucus or discharge should be gently removed prior to acetic acid. A meta-analysis by Mitchell *et al* (1998) found sensitivity of colposcopy was significantly higher when acetic acid was applied twice versus once (97% vs 91%). Lesion size and margins were also better delineated with repeat application. Techniques like photocolposcopy with green filter illumination and digital imaging analysis may further enhance acetic acid contrast for superior lesion detection (Lou *et al*, 2014). Several patient factors also impact the accuracy of colposcopy. Sensitivity is lower in premenopausal women due to the presence of squamous metaplasia and endocervical columnar epithelium which can obscure CIN (Underwood *et al* 2013). Younger age and history of abnormal cytology also reduce colposcopic accuracy (Pretorius *et al*, 2004). However, specificity is higher in younger women with fewer benign mimics of CIN. In postmenopausal women colposcopy has increased sensitivity but lower specificity compared to reproductive-aged women (Mitchell *et al*, 1998).

1.3.6 Strategies to improve accuracy

Given the challenges in correct interpretation of colposcopic findings, a clinical diagnosis cannot be made on impression alone. Histologic confirmation with biopsy is essential even when no visible lesion is seen, since subtle CIN may be missed (Massad *et al*, 2013). Several biopsies should be obtained from abnormal appearing areas. Random biopsies can also be considered after applying acetic acid in the upper vagina and cervix. For clinicians learning colposcopy, hands-on training to recognise CIN patterns under supervision of an expert colposcopist is critical. Formal colposcopy training programmes utilising simulation, online modules, and interdisciplinary teaching clinics allow clinicians to hone skills and reduce their diagnostic thresholds for biopsy (McFarland *et al*, 2007). Self-evaluation by reviewing archived colposcopic images with known outcomes also improves agreement and accuracy (Massad *et al,* 2013). At the population level, quality assurance mechanisms should systematically monitor performance of colposcopy clinics by correlating impressions with histopathology results. Clinics not meeting minimum accuracy benchmarks for CIN detection should receive additional training and supervision until competency standards are satisfied (McFarland *et al,* 2007). Establishing ongoing quality assurance and lifelong colposcopic education is vital to promote early detection of cervical cancer precursors.

1.3.7 Patient experience of colposcopy

In addition to optimizing its technical aspects, it is essential to address the patient experience of colposcopy. Women may experience significant anxiety about the impending procedure after being referred for colposcopy following an abnormal Pap smear or HPV test. Qualitative interviews reveal feelings of fear, stress, embarrassment, and uncertainty around the colposcopy appointment (Hounsgaard *et al,* 2007). Women are often unclear about the reasons and details of the procedure (Kavanagh and Broom, 1997). Those with histories of trauma or gynaecologic abuse may be re-traumatized by the colposcopy examination (Cadman *et al*, 2012). However, studies show providing an educational intervention prior to colposcopy significantly reduces anxiety compared to standard care. Printed or video materials explaining the procedure resulted in lower anxiety scores on the State-Trait Anxiety Inventory (STAI), less procedure-related pain, and higher patient satisfaction (Howell *et al*, 2002; Chan *et al*, 2003). Allowing women to verbalize their feelings and concerns is also beneficial. Individualised pre-counselling with a nurse reduced STAI scores by over 34% in one trial (Marteau *et al,* 1996). During the procedure, clinicians should explain each step in plain language prior to touching the patient. Allowing the woman to insert the speculum herself gives an increased sense of control (Hilal *et al*, 1995). Providing reassurance, frequent updates on progress, and ongoing opportunities to ask questions are helpful. After colposcopy, patients appreciate a simple overview of findings, follow-up plan, and contact information if concerns arise later (Galaal *et al*, 2011). Overall, studies demonstrate that individualized pre-procedural counselling, patient education, and an encouraging interpersonal approach significantly improve women's colposcopy experiences. While clinical skills are indispensable, thoughtful communication and emotional support remain equally vital. As Baldwin (2006) concluded, "Women consistently state that the attitude of the colposcopist is one of the most important factors in determining acceptability of the procedure."

In cervical cancer screening, colposcopy provides a vital diagnostic bridge between initial abnormal results on cytology or HPV testing and definitive diagnosis of high-grade CIN. It allows detailed visualization of acetowhite lesions which cannot be assessed on screening modalities alone. Targeted biopsies guided by colposcopy maximize the yield in detecting precancerous changes. While newer technologies are emerging for computer-assisted imaging, colposcopy remains the gold standard for evaluating cervical abnormalities (WHO, 2023; Amadi, Khan and Lawal, 2024). Key advantages include high accuracy when performed by experienced colposcopists, ability to tailor treatments, and minimal patient discomfort. Despite advances in primary screening methods, colposcopy will continue to serve an essential role in follow-up diagnosis to identify women at highest risk for cervical cancer. Colposcopy serves a critical diagnostic role in evaluating abnormal cervical screening results and identifying precancerous lesions. However, challenges like observer subjectivity, technical factors, and patient characteristics impact accuracy. Ongoing training, quality assurance mechanisms, and tailored patient education/counselling help mitigate these difficulties. Considering the patient perspective through open communication, reassurance, and emotional support is equally essential for acceptable colposcopy experiences. Further research on colposcopic imaging analysis and integrated interventions to reduce patient anxiety will facilitate continued progress. With concerted efforts to refine both its technical and interpersonal aspects, colposcopy can maximize early detection and prevention of cervical cancer.

1.4 DEFINITION OF TERMS

For consistency and clarity to the reader, the key terms used in this study are defined as follows:

Cervical Cancer: A malignant tumour of the cervix, primarily caused by persistent infection with high-risk human papillomavirus (HPV) types (WHO, 2022).

Colposcopy: A diagnostic procedure that uses a specialised microscope (colposcope) with a light source to examine the cervix, vagina, and vulva for signs of disease. It is typically performed following an abnormal Pap smear or positive HPV test with VIA (Prendiville and Sankaranarayanan, 2017).

Healthcare Professionals: In this study, this term refers to qualified medical personnel involved in providing colposcopy services, including gynaecologists, general practitioners, nurses, and midwives. This can be used interchangeably with service providers or healthcare providers.

Women: This is referred in this study as human categorised as female gender and eligible for colposcopy cervical screening. This can also be used interchangeably with patients or service users.

Rural Areas: For this study, rural areas are defined as settlements with a population of less than 20,000 inhabitants, limited infrastructure, and predominantly agricultural economic activities, as classified by the Nigerian Population Commission (NPC, 2019).

Rivers State: One of Nigeria's 36 states, located in the Niger Delta region in the southern part of the country, with an estimated population of 7.3 million (NPC, 2019).

Perception: The way in which something is regarded, understood, or interpreted based on one's beliefs, attitudes, and experiences (Oxford English Dictionary, 2022).

Experience: Is the practical contact with and observation of facts or events, or the knowledge or skill acquired through this contact (Oxford English Dictionary, 2022).

1.5 BACKGROUND TO THE STUDY

Cervical cancer remains a critical global health challenge, with its impact felt most acutely in low- and middle-income countries where access to screening and treatment is often limited (WHO, 2023). The gravity of this issue is underscored by recent statistics, which reveal that cervical cancer accounts for approximately 604,000 new cases and 342,000 deaths reported globally in 2020, making it the fourth most common cancer among women in the world (International Agency for Research on Cancer, 2024; Hull *et al.,* 2020; Canfell *et al.,* 2020; WHO, 2022). If no significant intervention is made to minimize the global burden of cervical cancer, it is projected to increase to nearly 700,000 new cases and 400,000 deaths by 2030. This represents increases of 21% and 27% in cases and deaths, respectively (WHO, 2024; Zhao *et al.,* 2021). In recent years, this malignancy has emerged as the leading cause of cancer-related deaths among women sub-Saharan Africa, a trend that is particularly alarming for women in rural areas who often have limited access to healthcare resources (International Agency for Research on Cancer, 2024; Canfell *et al.,* 2020). The disparity in cervical cancer incidence between high-income countries and middle- or low-income nations is stark and deeply concerning, with nearly 90% of all cervical cancer deaths occur in low and middle-income countries (LMICs) (World Health Organisation, 2023). In high-income countries, where screening facilities are widely available and accessible, women are more likely to undergo regular cervical cancer screenings and check-ups. This proactive approach to healthcare has significantly reduced the burden of cervical cancer in these regions. However, in middle- and low-income countries, the story is markedly different. The burden of cervical cancer in these regions is disproportionately high, reflecting a critical gap in healthcare infrastructure and preventive services (Hull *et al.,* 2020; Canfell *et al.,* 2020).

The preventable nature of cervical cancer makes its prevalence all the more tragic. Despite being avoidable through early detection and treatment, it remains the fourth most common malignancy worldwide and the most prevalent genital tract cancer among women globally (International Agency for Research on Cancer, 2024; WHO, 2023). This statistic alone serves as a stark illustration of the global health inequalities that persist in our modern world. The mortality rates associated with cervical cancer are equally distressing. Each year, the disease claims approximately 350,000 lives, with 90% of these deaths occurring in low-income countries, including Nigeria (Ifemelumma *et al.,* 2019). In these regions, the majority of cases are diagnosed in the late stages of the disease, a consequence of inadequate or non-existent screening programmes (Mwaka, Wabinga and Mayanja-Kizza, 2013; Ifemelumma *et al.,* 2019). This late-stage diagnosis significantly reduces the chances of successful treatment and survival, further exacerbating the impact of the disease on individuals, families, and communities.

Nigeria, as the most populous country in Africa, faces a particularly daunting challenge in addressing cervical cancer. With 47.72 million women aged 15 years and above at risk of developing cervical cancer, the potential impact of this disease on public health and societal well-being is immense (Bruni *et al.,* 2014; Information Centre on HPV and Cancer (ICO) 2014). The disease disproportionately affects poor, uneducated women living in disadvantaged areas, reflecting broader issues of healthcare access, gender inequalities, and health disparities (Anorlu *et al.,* 2007). The statistics for Nigeria are particularly alarming. Cervical cancer ranks as the second most prevalent cancer among women in the country, with approximately 14,943 new cases and 10,403 deaths reported in 2020 alone (Anorlu *et al.,* 2007; Arbyn *et al.,* 2020). The high mortality rate is primarily attributed to late-stage diagnosis and insufficient screening initiatives, particularly in rural regions where healthcare resources are scarce (Okunade *et al.,* 2017). The epidemiological landscape of cervical cancer in Nigeria presents a significant public health challenge, with a prevalence rate of 250 per 100,000 population. This translates to an annual burden of approximately 10,000 new cases. Even more distressing is the mortality rate, with an estimated 8,000 women succumbing to the disease each year (Ifemelumma *et al*., 2019).

These statistics underscore the urgent need for comprehensive interventions targeting prevention, early detection, and improved therapeutic strategies. Despite widespread awareness campaigns about cervical cancer and preventive measures over the past decade, the incidence and mortality rates among women in sub-Saharan Africa remain stubbornly high (Balasubramani *et al*., 2008; Gundani and Chipfuwa, 2013). This persistence of high rates despite increased awareness highlights the complex nature of the problem and the need for multifaceted solutions that address not only knowledge gaps but also structural and societal barriers to care.

The impact of cervical cancer extends far beyond the individual, affecting families and communities at large. Women play vital roles in society, and their health is essential for them to achieve their full potential. As such, women's reproductive health must be viewed from a holistic perspective, considering their biological, psychological, and social development (Pinn, 2008). This approach recognises that women's health issues, including cervical cancer, are not isolated medical problems but are deeply intertwined with broader societal issues and inequalities.

Prevention remains the most effective strategy in curbing the burden of cervical cancer. Comprehensive programmes involving awareness creation, vaccination, early screening, and treatment of pre-cancerous lesions are crucial (Davies *et al.,* 2015). Healthcare providers play a pivotal role in this effort and must be adequately equipped with up-to-date knowledge on the condition, screening methods, and treatment procedures. As the primary source of information and care for vulnerable groups and the community at large, healthcare professionals are at the forefront of the fight against cervical cancer (Mwaka, Wabinga and Mayanja-Kizza, 2013; Davies *et al.,* 2015).

The cervical screening programme is a key component of the World Health Organisation's (WHO, 2022) health policy addressing the primary prevention of cervical cancer (Swancutt *et al.,* 2008; Mansor, Afiqah and Lim, 2019). In 2007, WHO recommended a comprehensive, life-course approach to prevent and control cervical cancer, which has since formed the basis for formulating policies and approaches towards eliminating this deadly public health issue. This approach recognises that effective prevention and control of cervical cancer requires interventions at multiple stages of life and across various sectors of society.

The high burden of cervical cancer in Nigeria is attributed to both the high prevalence of Human Papilloma Virus (HPV) infection and the lack of effective cervical cancer screening programmes (Adewole *et al*., 2005; Ndikom and Ofi, 2012; Okunowo *et al.,* 2018). Even in cases where effective screening programmes are available, poor knowledge, inadequate diagnosis, and poor healthcare-seeking behaviour among the populace have led to underutilisation of such services (Ndikom and Ofi, 2012; Okunowo *et al.*, 2018). This highlights the need for not only improving the availability and accessibility of screening services but also addressing the social and cultural factors that influence healthcare-seeking behaviours.

An essential strategy for minimizing the incidence and mortality rates associated with cervical cancer is increasing the screening rate and ensuring prompt and adequate diagnosis (Adewole *et al*., 2005; Manley *et al.,* 2017; Zaal *et al*., 2012). Colposcopy, an accepted procedure for the diagnosis and treatment of abnormal or precancerous cervical lesions, plays a crucial role in this effort. However, the growing number of abnormal smears referred for colposcopy has increased pressure on services, often resulting in poor or inadequate screening of clients (Adewole *et al.,* 2005; Ndikom and Ofi, 2012; Okunowo *et al.,* 2018). This situation underscores the need for increased investment in healthcare infrastructure and training of healthcare professionals to meet the growing demand for cervical cancer screening and treatment services.

Furthermore, the fight against cervical cancer, particularly in low- and middle-income countries like Nigeria, requires a multifaceted approach that addresses not only the medical aspects of the disease but also the broader social, economic, and cultural factors that contribute to its high incidence and mortality rates. Only through such a holistic and sustained effort can we hope to reduce the burden of cervical cancer and improve the health and well-being of women worldwide (Ifemelumma *et al*., 2019; Canfell *et al.,* 2020).

1.6 DEVELOPMENT OF COLPOSCOPY CERVICAL CANCER SCREENING PROGRAMME IN RIVERS STATE

Cervical cancer represents a significant public health issue in Nigeria, causing over 14,000 new cases and 8,200 deaths annually. It constitutes 22.9% of all female cancers in the country. Factors such as low disease awareness, restricted access to screening and treatment, high human papillomavirus (HPV) infection rates, and inadequate cancer surveillance contribute to this high burden. Less than 5% of eligible Nigerian women undergo cervical cancer screening (Amadi, Khan and Lawal, 2024). There is no national cervical cancer screening programme in Nigeria, however, there are institutional screening programmes in different states. Rivers State located in the oil-rich South-South region, mirrors the national picture with cervical cancer as the most prevalent cancer among women in the state. Overall screening coverage using pap smear cytology has remained low at less than 5% nationally. As part of efforts to address this challenge, the Clinton Health Access Initiative (CHAI) in partnership with Rivers state Government implemented a demonstration project to introduce colposcopy screening for cervical cancer in Rivers State from January 2021 to December 2023. Colposcopy is considered the gold standard for cervical screening and allows real-time detection and biopsy of suspicious lesions. This intervention was aimed at assessing the feasibility of utilising colposcopy to improve early diagnosis and treatment of precancerous cervical lesions in low resource settings like Rivers State.

1.6.1 CHAI Project Overview in Rivers State

Goals and Objectives

The goal of the colposcopy demonstration project initiated by CHAI in collaboration with Rivers state government was to assess its utility in increasing detection and treatment of precancerous cervical lesions compared to existing visual inspection approaches.

The specific objectives were:

- ❖ To introduce colposcopy screening services in selected secondary health facilities in Rivers State
- ❖ To determine number of precancerous lesions detected via colposcopy compared to visual methods.
- ❖ To assess feasibility and acceptability of colposcopy among health workers and clients
- ❖ To generate evidence to inform scale-up of colposcopy for cervical cancer screening.

1.6.2 Implementation Sites

The CHAI project was implemented in 10 selected secondary health facilities offering gynaecological services across 5 Local Government Areas (LGAs) of Rivers State. They comprised of 3 General Hospitals and 7 Cottage Hospitals. These sites were chosen due to high patient load and availability of basic infrastructure and personnel to support colposcopy services.

1.6.3 Target Population

The primary target population was women aged 30 to 65 years attending clinics at the health facilities. WHO recommends that all women aged 30 to 49 years be screened for cervical cancer (WHO, 2023). However, the project was expanded to 65 years since colposcopy allows diagnosis of precancerous lesions in older women who would benefit from treatment (Mitchell *et al*., 2023).

1.6.4 Colposcopy Services

At each site, a colposcopy unit was established consisting of a colposcope machine, examination table, instrument trolley, spotlight, and consumables. Two service providers – 1 doctor and 1 nurse - were trained on colposcopy using WHO modules (WHO, 2023). All women aged 30-65 years attending clinics were offered visual inspection with acetic acid (VIA). Those with positive VIA findings were then screened with colposcopy. Any acetowhite lesions were evaluated and biopsied. Women with abnormal histology results demonstrating precancerous lesions of cervical intraepithelial neoplasia (CIN 1, 2 or 3) were treated with cryotherapy or loop electrosurgical excision procedure (LEEP). Women with suspected cancer were referred to teaching hospital (University of Port Harcourt teaching hospital) for further management.

Quality assurance measures included photographic documentation of colposcopy findings, monitoring of histology results, competency assessments, and supportive supervision.

1.6.5 Capacity Building

Prior to rollout, CHAI conducted a 5-day practical colposcopy training for 40 Doctors and nurses from the project sites. Three of the doctors(gynaecologists) also underwent a 2-week hands-on colposcopy mentoring programme at a tertiary facility. During implementation, quarterly refresher trainings were conducted to reinforce competencies. The trainings focused on increasing theoretical knowledge on colposcopy principles, improving image recognition skills, and enhancing biopsy techniques.

1.6.6 Community Mobilization

To raise awareness and uptake of services, CHAI worked closely with community health extension workers, women leaders and youth volunteers. Outreach activities included dialogues, distribution of IEC materials, radio messages and mobilization during cultural festivals. Male engagement initiatives were undertaken to encourage spousal support for women to get screened.

1.6.7 Monitoring and Evaluation

The project involved collecting data to assess feasibility, effectiveness, and quality of colposcopy screening. Routine monitoring data on number of women screened, positive findings, precancerous lesions, treatment, referrals etc. was compiled. Client exits interviews assessed patient experience and satisfaction with colposcopy services. Periodic proficiency assessments were undertaken to evaluate providers' skills.

1.6.8 Key Achievements

Over the 3-year project duration, the key highlights included:

- 10 colposcopy units established at secondary health facilities across 5 LGAs.
- 42 health workers (20 female) trained on colposcopy services.
- 27,500 women aged 30-65 years screened for cervical cancer using colposcopy.

- 1,850 precancerous lesions diagnosed through colposcopy and biopsy.
- 1,720 women received cryotherapy treatment for destruction of precancerous lesions.
- 130 women referred for LEEP treatment at tertiary centres.
- Colposcopy identified 3 times more precancerous lesions compared to VIA alone.
- 96% of clients reported satisfaction with colposcopy services compared to 68% for VIA.
- 60% increase in uptake of screening services after community mobilization efforts
- Rivers State government allocated $1.5 million for procuring additional colposcope machines.

1.6.9 Lessons Learned

The colposcopy demonstration project provided important evidence and lessons for implementing effective cervical cancer screening programmes using colposcopy: Colposcopy enables detection of more precancerous lesions compared to visual screening alone. However, VIA is still useful for initial screening. Hands-on training, mentoring and supportive supervision are essential for building colposcopy skills. Refresher trainings help maintain competencies. Early community engagement is key for uptake and retention of women in the screening pathway. Women are more receptive to colposcopy screening compared to VIA due to real-time results. Leveraging existing facilities and utilising lower cadre providers helps demonstrate feasibility of decentralized colposcopy services. Strong monitoring systems are invaluable for performance tracking and planning scale-up. Government ownership and adequate financing are necessary for long-term sustainability of colposcopy programmes.

In summary, CHAI's pilot demonstrated that colposcopy is feasible and acceptable in low resource settings like Rivers State for improving detection and treatment of precancerous cervical lesions. The lessons learned provide a model for nationwide implementation of colposcopy services within a comprehensive cervical cancer prevention and control strategy. With adequate investment in capacity building, community mobilization and smart financing by government, colposcopy can be a game changing intervention against the intolerable burden of cervical cancer in Nigeria.

1.7 PROBLEM STATEMENT

Cervical cancer remains a significant global health concern, with alarming incidence and mortality rates that disproportionately affect women in low-income countries. According to the World Health Organisation (WHO), cancer is the leading cause of morbidity and mortality worldwide, with cervical cancer being the second most common malignancy among women. In 2012 alone, there were approximately 14 million new cancer cases and 8.2 million cancer-related deaths globally. The steady increase in cancer incidence has become a source of growing concern for the global population (Naik and Donta, 2017; Ifemelumma *et al*., 2019).

Cervical cancer, in particular, poses a significant threat to women's health worldwide. Despite being a largely preventable disease through vaccination and screening for pre-cancerous lesions, over 250,000 women continue to die from cervical cancer each year (Mwaka, Wabinga and Mayanja-Kizza, 2013; Picciotto and Fox, 2018). The World Health Organisation estimates that annually, more than 520,000 new cases of cervical cancer are diagnosed, resulting in over 260,000 deaths (Bruni *et al*, 2015). The burden of this disease falls disproportionately on low-income countries, where access to detection and treatment of pre-cancerous lesions is often limited or non-existent.

Recent studies have highlighted the stark disparity in cervical cancer incidence and mortality between developed and low-income nations. Of the approximately 500,000 new cases of cervical cancer diagnosed globally each year, a staggering 80% occur in low-income countries. Similarly, of the estimated 273,000 annual deaths from cervical cancer, 85% occur in low-income countries, including Nigeria. In these regions, many cases are diagnosed at advanced stages due to inadequate or non-existent screening programmes (Mwaka, Wabinga and Mayanja-Kizza, 2013; Ifemelumma *et al.,* 2019).

The situation in Africa is particularly dire. Cervical cancer is the most common cancer among women on the continent, accounting for 22% of all female cancers and 12% of newly diagnosed cancers overall. The World Health Organisation reports that an estimated 68,000 cases of cervical cancer in Africa are caused by HPV each year. The incidence and mortality rates are sobering out of every 100,000 African women, 34 are diagnosed with cervical cancer, and 23 die from the disease (WHO, 2017).

In Nigeria, the prevalence of cervical cancer is alarmingly high at 250 per 100,000 population. Each year, approximately 10,000 women in Nigeria develop cervical cancer, and about 8,000 women die from the disease (Ifemelumma *et al.,* 2019). The International Agency for Research on Cancer has identified lack of information and knowledge about the disease as a significant contributor to the high mortality rate. This underscores the critical importance of awareness creation in reducing risk and promoting early diagnosis, particularly in low to middle-income countries (Nartey *et al.,* 2016). Interestingly, research has shown that even among health professionals, there is often a lack of adequate knowledge regarding cervical cancer. A study by Ali *et al*. in 2010 revealed that a significant number of health professionals do not possess sufficient knowledge about the disease. Furthermore, a study conducted in Sokoto, a state in northern Nigeria, examining the knowledge and practices of female health professionals concerning cervical cancer screening, found that despite being aware of screening procedures, many did not access these services due to a belief that they were not at risk of developing the disease (Chigbu and Aniebue, 2011).

Despite widespread awareness campaigns about cervical cancer and preventive measures over the past decade, the incidence and mortality rates among women in sub-Saharan Africa remain stubbornly high (Balasubramani *et al.,* 2008; Gundani and Chipfuwa, 2013). Prevention is widely recognised as the most effective approach to reducing the burden of cervical cancer. This can be achieved through comprehensive programmes that encompass awareness creation, vaccination, early screening, and treatment of pre-cancerous lesions (Davies *et al.,* 2015).

Healthcare providers play a crucial role in these prevention efforts. It is essential that they are equipped with up-to-date knowledge about cervical cancer and screening methods, as they serve as the primary source of information and care for vulnerable populations and the community at large (Mwaka, Wabinga and Mayanja-Kizza, 2013; Davies *et al.,* 2015). The cervical screening programme is a key component of WHO health policy addressing the primary prevention of cervical cancer (Swancutt *et al.,* 2008; Mansor, Afiqah and Lim, 2019). In 2007, WHO recommended a comprehensive, life-course approach to prevent and control cervical cancer, which has since formed the basis for policy formulation and approaches aimed at eliminating this deadly public health issue. The high burden of cervical cancer in Nigeria can be attributed to both the high prevalence of Human Papilloma Virus (HPV) infection and the lack of effective cervical cancer screening programmes. Even in cases where effective screening programmes are available, poor knowledge, inadequate diagnosis, and poor healthcare-seeking behaviour among the population have led to underutilisation of these services (Swancutt *et al.,* 2008; Manley *et al*., 2017). A critical strategy for reducing the incidence and mortality rates associated with cervical cancer is to increase screening rates and ensure prompt and accurate diagnosis (Manley *et al*., 2017; Zaal *et al*., 2012). Research evidence has demonstrated that primary prevention alone is insufficient in cervical cancer prevention. Therefore, it is crucial to integrate other categories of prevention into all programmes aimed at reducing cervical cancer incidence and death (Mwanahamuntu *et al.,* 2014; Parham *et al,* 2015). Colposcopy, a form of secondary prevention, is considered one of the gold standard cervical cancer screening methods adopted by most developed and low-income countries to promote early detection and treatment of cervical cancer globally. The colposcopy-guided biopsy is crucial for detecting cervical intraepithelial neoplasia (CIN) and has become a critical component in improving screening performance (Davies *et al,* 2015).

Colposcopy is an accepted procedure for the diagnosis and treatment of abnormal or precancerous cervical lesions. However, the growing number of abnormal smears referred for colposcopy has increased pressure on services, sometimes resulting in poor or inadequate screening of clients (Manley *et al.,* 2017; Zaal *et al.,* 2012; Swancutt *et al.,* 2008). This highlights the need for increased resources and improved efficiency in colposcopy services to meet the growing demand and ensure high-quality care for all patients. Addressing the global burden of cervical cancer, particularly in low-income countries, requires a multifaceted approach. This includes improving awareness and knowledge among both the general population and healthcare providers, implementing comprehensive screening programmes, ensuring access to vaccination, and providing timely and effective treatment for pre-cancerous lesions and early-stage cancers. By focusing on these areas and leveraging tools such as colposcopy, it is possible to significantly reduce the incidence and mortality of cervical cancer, ultimately improving women's health outcomes worldwide.

1.8 JUSTIFICATION OF THE STUDY

1.8.1 Purpose of the study

This study was justified considering the major health concerns for women across Nigeria. Studies show that women in middle and low-income countries are more prone to cervical cancer than those in high-income countries. Cancer of the cervix is of utmost concern to both high- and low-income countries but with a higher incidence in low-income countries (Arbyn *et al,* 2011). It has become a major health challenge for women all over the world with a negative impact on governments, communities, families, and individuals. In addition, a recent study shows that the incidence and deaths associated with cervical cancer are on a steady rise in low-income countries, as opposed to the reduction reported in high-income countries (Murthy *et al*., 2010). Despite statistics indicating a high prevalence of cervical cancer in Nigeria, few prevention programmes and measures have been implemented. Colposcopy screening uptake is a major problem in low-income countries (Ifemelumma *et al*., 2019). There are limited studies available on this research topic regarding rural women's experience, perceptions, and their access to colposcopy utilisation. Most studies on cervical cancer screening uptake in Nigeria focused mainly on other screening methods like pap smears and visual inspection with acetic acid (VIA), with less attention given to colposcopy as a diagnostic tool. The few studies that were found through a systematic search were conducted in urban population in Nigeria. There is a noticeable gap in the literature regarding rural women's perceptions of colposcopy and the challenges they face accessing this screening method. The literature has identified some gaps and many factors contributing to the non-utilisation of colposcopy screening services. However, most of these studies were conducted in high-income countries and in urban settings. The results of these studies might not be applicable to Nigeria because of the contextual differences between countries and health systems. Therefore, the purpose of this research is to identify the source of the gap in prompt and adequate diagnosis and utilisation of colposcopy screening services among women in rural areas. This gap is a determinant factor in preventing and treating premalignant cervical lesions in reproductive aged women. And addressing it will enhance the practices and utilisation of colposcopy cervical cancer screening services, therefore reducing cervical cancer burden amongst women of reproductive age.

1.8.2 Significance of the study

Most interventions and policies to reduce the burden of cervical cancer were based on previous studies. These studies focused mainly on service users (women) point of view regarding their awareness, experiences, utilisation, and barriers of colposcopy cervical cancer screening (Martinez *et al*., 2023; Rahman *et al.,* 2023; Thompson *et al*., 2024). But no study has explored the service providers (Healthcare professionals) perspectives on colposcopy cervical cancer screening in Nigeria. Since colposcopy practice has undergone considerable changes and colposcopist opinions and experiences largely have a significant influence on service provision and the development of national policy (Swancutt *et al.,* 2008; Kola-Palmer, Walsh and Rogers, 2016; Ifemelumma *et al.*, 2019). However, healthcare professionals play a major role in promoting health care services and in enlightening the public on many health-related issues and their knowledge and perception on health-related interventions are crucial in gaining and promoting service user's uptake of care (Davies *et al.,* 2015; Ifemelumma *et al.,* 2019). Evidence has shown that despite all the interventions (including colposcopy) and policies to improve diagnosis and cervical cancer screening utilisation, there is still a gap in prompt and adequate diagnosis and utilisation of colposcopy screening services among women in rural areas, hence this study is to identify the source of the gap by exploring not just the service user's (women) perception and challenges but the service provider's (healthcare professionals) experience, perception and challenges of colposcopy cervical cancer screening among women in rural area since no such study has been done in our settings. The results of this research will help clinicians and policy makers in developing new or modifying already existing interventions to improve cervical cancer diagnosis and treatment as well as screening utilisation in both urban and rural areas in Nigeria.

1.9 AIM AND OBJECTIVES OF THE RESEARCH

The overall aim of this research is to develop a better understanding of colposcopy screening practice and its effect on utilisation among women in River state of Nigeria.

1.9.1 Objective

- ❖ To explore the opinion and perceptions of patients towards colposcopy cervical cancer screening.
- ❖ To explore the experiences and perception of healthcare professionals on colposcopy cervical cancer screening in rural areas.
- ❖ To understand the possible challenges or barriers affecting colposcopy screening in rural settings.

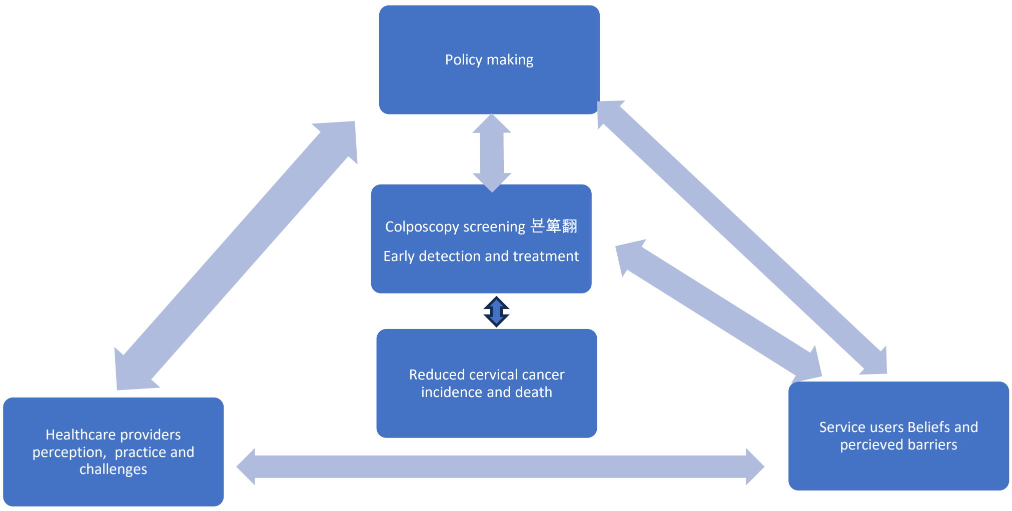
1.10 CONCEPTUAL MODEL OF INTERVENTION

The conceptual framework of this research is informed by the Health Belief Model (HBM), a widely utilised theoretical framework within the realm of health promotion and disease prevention (Rosenstock, 1974). This research investigates colposcopy screening perceptions and barriers using the Health Belief Model below (Fig. 1). Health Belief Model is a type of behavioural science theory and is an effective or powerful framework to investigate people’s attitudes or beliefs with the aim of understanding and predicting their health behaviour (Abraham and Sheeran, 2015). The HBM asserts that an individual's adoption of health-related behaviours, such as cancer screening, is shaped by their perceptions of the subsequent aspects: Perceived susceptibility: An individual's assessment of their vulnerability to developing the illness (specifically, cervical cancer). Perceived severity: An individual's evaluation of the gravity of the disease's consequences. Perceived benefits: An individual's judgment regarding the efficacy of the advised measure (in this instance, colposcopy screening) in diminishing the risk or severity of the disease. Perceived barriers: An individual's viewpoint on the concrete and emotional costs associated with undertaking the recommended measure. Cues to action: Stimuli that prompt an individual to partake in the recommended action. Self-efficacy: An individual's confidence in their capacity to effectively undertake the recommended action.

The HBM furnishes a valuable framework for comprehending the determinants influencing the acceptance of colposcopy cervical cancer screening among patients in Nigeria. Moreover, the model can be employed in the context of healthcare professionals' involvement in advocating for and delivering colposcopy services, given that their attitudes and beliefs can also influence the utilisation of these services by the intended beneficiaries.

Through the integration of the Health Belief Model, this study aims to evaluate the influence of the knowledge, experience and perceptions of healthcare professionals and patients on the provision and uptake of colposcopy cervical cancer screening in Nigeria. This theoretical framework will steer the study's design, the data gathering process, and the interpretation of the results. The Health Belief Model offers a systematic framework for analysing participants' perceptions, experiences, and barriers associated with colposcopy screening. It considers factors such as perceived susceptibility, severity, benefits, and barriers to systematically investigate their impact on screening behaviours in rural settings. This method facilitates an in-depth understanding of the perspectives of both service users and providers, thereby addressing the complex aspects of the research question.

Fig 1.1: Health Belief Model framework adapted from ResearchGate.



(ResearchGate, 2022).

There are other theoretical frameworks which were considered for this study but were not selected. The Socio-Ecological Framework examines multiple levels of influence (individual, interpersonal, community, organisational, and policy), however, it cannot explain the process of clinical decision-making by healthcare professionals and how women's health beliefs influence colposcopy experiences in rural Nigerian contexts. The Theory of Planned Behaviour (TPB) though can explain how individual effectively makes decision through attitudes, subjective norms, and perceived control, but lacks the mechanism to addresses the prevalent of structural constraints in rural healthcare settings. Similarly, the Transtheoretical Model, is useful in understanding the stages involved in behaviour change, however, cannot account for systemic barriers common in resource-limited environments.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides an overview of the burden of cervical cancer in Nigeria and its screening, as well as a scoping review of literature or research that addressed health care providers and service users' knowledge, experience, and perception of colposcopy method of cervical cancer screening and utilisation amongst women. The empirical research on the current cervical cancer screening were reviewed and the possible barriers that hinder healthcare professionals from making prompt and adequate cervical cancer diagnosis as well as utilisation of colposcopy screening service among women were identified.

2.1 INTRODUCTION

Cervical cancer is a major public health concern worldwide, with an estimated 604,000 new cases and 342,000 deaths globally in 2020 (Yahya and Mande, 2019; Esike *et al.,* 2018). Cervical cancer burden is disproportionately higher in low- and middle-income countries (LMICs), which account for about 90% of global cases and deaths (Yahya and Mande, 2019; Esike *et al.*, 2018). According to Omotunde and Amosu Ademola (2020), Nigeria is the most populous country in Africa and has one of the highest cervical cancer incidence and mortality rates worldwide. With an age-standardised incidence rate of 24.9 per 100,000 women and a mortality rate of 16.7 per 100,000 women (Omotunde and Ademola, 2020).

In general, cervical cancer is a preventable disease, and early detection through screening and appropriate treatment of precancerous lesions can significantly reduce its incidence and mortality (Omotunde and Amosu Ademola, 2020). It is recommended that cervical cytology (Pap smear) and/or human papillomavirus (HPV) testing be used as the primary screening methods for cervical cancer by the World Health Organisation (WHO) (Anene-Okeke, Aluh and Okorie, 2019). To determine the presence and extent of precancerous lesions, colposcopy, a diagnostic procedure that permits visual examination of the cervix, is often used as a follow-up test for women with abnormal screening results (Massad *et al*., 2013).

The uptake of cervical cancer screening remains low in Nigeria, with only 14% of women ever having been screened (Okunowo *et al.,* 2018). The low screening rates can be attributed to several factors, including a lack of screening services, limited awareness among the population, and socio-cultural barriers (Ndikom and Ofi, 2012). To improve the uptake and quality of cervical cancer screening services in the country, it is critical to understand the experiences and perceptions of both healthcare professionals and patients regarding colposcopy cervical cancer screening.

2.1.1 Aim and objectives of the literature review

This literature review aims to synthesise the available evidence regarding healthcare professionals' and patients' experiences and perceptions related to colposcopy cervical cancer screening in Nigeria.

The review objectives will focus on the following key aspects:

1. To examine the research activities focused on healthcare professionals' knowledge, experience, and practices related to colposcopy cervical cancer screening.
2. To examine the research activities focused on patients' awareness, experiences, and perceptions of colposcopy cervical cancer screening.

3. To identify the gap and formulate the research questions.

The findings of this review will contribute to a deeper understanding of the present state of colposcopy in cervical cancer screening in Nigeria. This will provide guidance for the development of specific research questionnaire for data collection in this study.

2.2 REVIEWS OF EXISTING LITERATURE ON EXPERIENCE AND PERCEPTIONS OF COLPOSCOPY CERVICAL CANCER SCREENING UTILISATION

Cervical cancer screening via a colposcopy is vital for early detection and effective management. Its success hinges on the knowledge of healthcare professionals and the perceptions of patients. This study adopted a Joanna Briggs Institute (JBI) 2015 scoping review methodology to search the body of literature, map and review the state of research evidence, and identify knowledge gaps (Aromataris and Munn, 2020; Peter *et al*., 2023). The decision to conduct a scoping review of literature came from an initial inspection of the key information in the body of work. The adoption of the JBI 2015 scoping review methodology is due to its meticulous and systematic process for collating varied evidence on colposcopy screening. This approach facilitates an exhaustive review of the current literature, pinpoints areas lacking information, and amalgamates insights from different studies. It offers a methodical structure for tackling the intricate aspects of the research question, guaranteeing a comprehensive and impartial review of the literature. This scoping review also considered existing reviews and their theoretical focus. The Joanna Briggs Institute (JBI) 2015 methodology for mixed method scoping reviews was adopted. This JBI 2015 scoping review seeks to integrate both qualitative and quantitative evidence regarding experiences and perceptions of colposcopy utilisation in cervical cancer screening. This approach facilitates the incorporation of various study designs (Aromataris and

Munn, 2020). Through a thorough search strategy, meticulous critical appraisal, and detailed data extraction. This review delivers a comprehensive insight into the factors that affect the uptake of colposcopy screening, thereby guiding enhancements in cervical cancer prevention initiatives (Lockwood *et al*., 2015).

Scoping reviews became recognised as a unique methodology in the early 2000s, initially introduced by Arksey and O'Malley in 2005. Their seminal framework offered a structured approach for exploring or mapping broad topics. Later, Levac *et al*. (2010) and Peters *et al*. (2015), further modified this methodology, increasing its thoroughness and applicability in various research areas (Tricco *et al*., 2016). They emphasised the significance of scoping review in the revised Evidence Based Practice (EBP), stating that scoping review provides strong evidence for supporting the revised EBP. The use of ScRs in EBP provides practitioners with an opportunity to access pre-filtered evidence (Schlosser, 2007). Guyatt and Rennie (2002) define pre-filtered evidence as evidence that has been reviewed and presented by an expert in the field of a substantive area according to the strongest methodological evidence. In his book Schlosser (2007), Schlosser stressed that pre-filtered evidence can significantly reduce practitioners' time, especially when they are relying on the expertise of someone else. The main objective of systematic review is to combine the results of several individual studies using strategies that limit bias (Cook *et al.,* 1997).

2.2.1 Rationale for choosing scoping review

The rationale for choosing a scoping review for the study is mainly due to the paucity of studies in this topic area and its ability to map the breadth and depth of available evidence on the topic. Unlike systematic reviews, which aim to answer specific questions, scoping reviews are ideal for exploring broader research areas and identifying knowledge gaps. This approach allows us to examine the extent, range, and nature of research activity, summarize findings across diverse study designs, and identify areas where full systematic reviews may be beneficial. Given the evolving nature of our research area, a scoping review provides the flexibility to include various types of literature, helping to clarify key concepts and inform future research directions. Peter *et al.,* (2023) analysed 245 reviews and concluded that scoping review are 73% more effective in capturing emerging study areas and identifying future study priorities than systematic review. This methodology also enables us to provide a comprehensive overview of the field without being constrained by narrow inclusion criteria or quality assessment requirements.

Scoping review differs from narrative review. In a narrative review, a subject expert writes about a particular topic, condition, or treatment based on their knowledge and experience (Garg *et al*., 2008). The selection criteria and database searches depend on the authors' preferences, with unspecified and non-replicable methods (Booth *et al.,* 2012; Petticrew and Roberts, 2006). In contrast, scoping reviews adhere to a structured methodological approach, aiming to map the key concepts, types of evidence, and gaps in research related to a defined area or field (Arksey and O'Malley, 2005). Unlike narrative reviews, scoping reviews follow a systematic and transparent process, though they are generally broader in scope and less focused on answering specific research questions compared to systematic reviews (Munn *et al*., 2018). Scoping reviews typically aim to examine the extent, range, and nature of research activity, summarize and disseminate research findings, and identify research gaps in the existing literature (Levac *et al.,* 2010). While narrative reviews offer benefits such as providing broad overviews of relevant information gathered over years of practice (Garg *et al*., 2008), scoping reviews offer a rigorous and transparent method for mapping areas of research (Pham *et al*., 2014). Scoping reviews can be particularly useful in emerging fields where the body of evidence is still developing, helping to clarify key concepts and identify knowledge gaps (Peters *et al.,* 2015). Scoping reviews can inform future research priorities, identify the types and sources of available evidence, and clarify working definitions and conceptual boundaries of a topic (Tricco *et al*., 2016). They are also valuable for examining how research is conducted on a certain topic or field, potentially informing subsequent systematic reviews (Munn *et al*., 2018). Despite these benefits, like systematic reviews, scoping reviews can vary in quality and reliability depending on the rigor of the methodology employed (Pham *et al.,* 2014). It's important to note that while scoping reviews provide a broad overview of the evidence, they typically do not include a formal assessment of the quality of individual studies, which is a key difference from systematic reviews (Tricco *et al.,* 2016)

2.2.2 Strengths and limitations of scoping review

A scoping review is a crucial method for broadly and exploratively mapping existing research evidence, enabling researchers to pinpoint key concepts, research gaps, and the types of evidence present in a specific field. This method has become increasingly popular in various disciplines, such as healthcare, social sciences, and education. Like all research methodologies, scoping reviews have their own set of strengths and weaknesses that need to be weighed against other methods (Peter *et al*., 2023). The primary strengths and weaknesses of scoping reviews will be contrasted with other research methodologies.

2.2.2.1 Strengths of scoping reviews:

1. Breadth and Flexibility: Scoping reviews encompass a wide spectrum of research on a given topic, including different study designs and methodologies. This extensive

scope provides a comprehensive summary of the literature, highlighting central concepts and areas lacking research.

2. Iterative Process: Scoping reviews typically utilize an iterative search strategy, which allows researchers to refine their methods as they delve deeper into the literature. This adaptability leads to a more in-depth grasp of the research field.

3. Rapid Assessment: Scoping reviews can be executed more swiftly than systematic reviews, making them advantageous for evaluating new topics or offering an initial survey of a research domain.

4. Identification of Research Gaps: Scoping reviews excel at charting out the literature to detect where research is insufficient, thus directing subsequent research endeavours.

5. Stakeholder Consultation: Scoping reviews often include a phase of consultation with stakeholders, which provides valuable perspectives and ensures that the review's findings are pertinent to both practice and policy.

The primary advantage of scoping reviews is their ability to offer a comprehensive overview of a research field, pinpointing the scope, nature, and attributes of primary research (Arksey and O'Malley, 2005). Scoping reviews are invaluable when the literature on a subject is extensive and varied, aiding researchers in grasping the breadth of available research and the main methodologies employed (Levac *et al.,* 2010). They are especially beneficial for investigating nascent evidence when it's not yet clear which specific inquiries can be pursued through a more targeted systematic review (Peters *et al*., 2015).

2.2.2.2 Limitations of scoping reviews:

1. Lack of Quality Assessment: Scoping reviews generally do not conduct a formal quality appraisal of the included studies, unlike systematic reviews, which may hinder the ability to make definitive conclusions about the evidence's robustness.
2. Descriptive Nature: Scoping reviews tend to be primarily descriptive and usually do not aim to synthesise evidence or compile findings from various studies.
3. Potential for Bias: Despite striving for comprehensiveness, scoping reviews may be prone to different biases, such as publication bias and selection bias.
4. Limited Depth: Scoping reviews' wide-ranging focus may not delve into the same level of detail on particular topics as systematic reviews or meta-analyses do.
5. Evolving Methodology: The methods for performing scoping reviews are still in development, which may result in inconsistencies in their execution and reporting.

Despite these strengths, scoping reviews are not without limitations. The absence of a quality assessment for included studies is a significant shortcoming of scoping reviews (Pham *et al.,* 2014), implying that the findings might be based on studies of variable quality, which could affect the reliability of the conclusions. Additionally, the expansive scope of scoping reviews can pose challenges in synthesising findings effectively, especially when the studies involved are highly diverse (Levac *et al*., 2010).

2.2.3 Comparison to Other Approaches:

Meta-analyses: These are centred on statistically combining results from several studies but need more homogeneous data than is usually found in a scoping review.

Rapid Reviews: While similar to scoping reviews in their expedited nature, rapid reviews typically address a more specific research question and may include some level of quality assessment.

Integrative Reviews: These reviews integrate data from various types of research (e.g., experimental and non-experimental) but usually focus more narrowly than scoping reviews.

In summary, scoping reviews are a useful tool for mapping out existing literature and identifying gaps in research, recognised for their comprehensive scope and adaptability. Nonetheless, they usually do not evaluate the quality of the studies included and may not offer the same level of analysis depth as systematic reviews. Other approaches, such as systematic reviews, meta-analyses, and narrative reviews, might provide a more thorough synthesis or detailed analysis but often lack the wide-ranging, exploratory character of scoping reviews.

2.3 SCOPING REVIEW PROCESS

The objective of this literature review is to identify the gap in knowledge and summarise key issues relating to challenges in the implementation of cervical cancer screening programmes in low-income countries, especially Nigeria, with a focus on experience perception and challenges of colposcopy screening. The literature review includes the following:

- The cervical cancer burden in developed and low-income countries.
- The prevention of cervical cancer, including the natural history of cervical cancer and primary, secondary, and tertiary prevention.
- Experience perception and challenges of colposcopy screening.

2.3.1 The search strategy

This scoping review was conducted and reported according to the standards and guidelines established in the Preferred Reporting Items for Scoping Reviews (PRISma-ScR) using the keywords: cervical cancer, colposcopy, healthcare professional, patient, experience, perception, and challenges (Methley *et al.,* 2014).

An online comprehensive literature search was conducted in eight (8) key databases: Academic search elite, African journals online (AJOL), CINAHL, MBASE, psycho info, Cochrane, Medline (via PubMed) to identify relevant studies on healthcare professionals' and patients' experiences and perceptions of colposcopy cervical cancer screening in Nigeria. Supplementary literature search was also done through Google Scholar for articles relating to the experience perception and challenges of colposcopy screening. Based on the aims and research questions of this study, key search terms were developed using the Population (P), Intervention (I), Outcome (O) and Settings (S) models (Methley *et al.,* 2014). Adopting the Population, Intervention, Outcome, and Settings (PIOS) framework for developing search terms guarantees a thorough and systematic method for identifying literature. This approach encompasses all pertinent elements of the research question, thereby broadening the review's scope and relevance. The PIOS framework aids in formulating a targeted yet comprehensive search strategy, which enhances the scoping review process's efficiency and efficacy. The concepts (PIOS) include:

Table 2.1: Showing PIOS descriptions

Population	Service providers (healthcare professionals) Service users (women)
Intervention	Colposcopy screening, cervical cancer screening
Outcome	Experience, perception, and challenges
Settings	Nigeria

In addition, these concepts were broadened by using several synonyms and other related words that some researchers may have used in the literature. The study population was defined as service providers and service users. The search criteria included broad keywords and subject headings to maximize sensitivity. Filter was only applied to the language (English only). Database was examined for publications from inception to August 2023. Published papers, abstracts and conference posters were selected for eligibility from the above search engines. Studies relevant to this topic were searched in different electronic databases. The bibliographies of published articles and their reference lists were also carefully examined to identify additional articles and extract information from other relevant publications.

The World Wide Web was used to search the grey literature, and the Boolean operator was applied as a search engine to retrieve articles with other synonyms. The search strategy combined keywords related to cervical cancer screening, colposcopy, healthcare professionals, patients, and Nigeria. The Search terms included "cervical cancer AND colposcopy"; "colposcopy screening AND challenge* OR barrier*"; "healthcare professionals OR healthcare workers OR healthcare providers OR physician* OR nurse* OR doctor* AND colposcopy screening"; "perspective OR experience OR view* OR perceptions OR belief* AND colposcopy", "patients OR clients OR service users OR women AND cervical cancer screening OR colposcopy" "Nigeria", and related terms. The asterisk denotes the special symbol used to abbreviate a search term to look for all the different words of the term. For instance, when searching for women, the search engine displays all words that contain 'women*'. These words include women, female, ladies, married women, market women, urban and rural women, single mothers, female workers, and single ladies. The search strategy was adapted for each database to ensure optimal retrieval of relevant studies. A manual search of the reference lists of the included studies and relevant review articles was performed in addition to electronic database searches. This was to identify additional studies missed during the electronic search.

2.3.2 The Selection Strategy

The retrieved articles were exported to RefWorks Web Reference Management Software which was used to remove all duplicate records. An initial screening of titles and abstracts was performed and those that were not relevant to the research objective and questions were excluded. A more detailed review of the remaining abstracts was conducted to determine their eligibility and those that did not discuss specifically healthcare professional, or patient (women) experience, perception and challenges of colposcopy screening were excluded. Full texts of potentially eligible studies were obtained (either directly from the database or from the library upon request) and carefully reviewed to determine if they merited inclusion. Qualitative and quantitative articles as well as mixed method were included to broaden the knowledge of factors influencing colposcopy screening utilisation.

2.3.3 Inclusion and Exclusion Criteria

Arksey and O'Malley (2005) suggested that scoping reviews should use a systematic approach to map existing evidence, although they usually don't perform a formal quality assessment of the studies. Levac *et al*. (2010) emphasised the importance of adhering to the predetermined criteria outlined in the research protocol for study selection, allowing for greater flexibility than systematic reviews. In this study, key review questions were formulated to define specific inclusion and exclusion criteria for study selection, while preserving the broad, iterative essence typical of scoping reviews (Peters *et al.,* 2015). This method permits adjustments to the inclusion criteria based on increased familiarity with the literature (Tricco *et al.,* 2016).

2.3.3.1 Inclusion Criteria

Studies that met the following criteria were included in the review:

1. Study population: Original research articles investigating healthcare professionals (e.g., physicians, nurses, midwives) and/or patients' (women) experiences and perceptions of colposcopy cervical cancer screening.
2. Study design: Qualitative, quantitative, or mixed-methods studies.
3. Outcome measures: Studies that reported on the knowledge, attitudes, practices, experiences, and/or perceptions of healthcare professionals and/or patients regarding colposcopy cervical cancer screening.
4. Setting: Studies conducted in and outside Nigeria with participants being healthcare professionals involved in colposcopy cervical cancer screening or patients who have undergone or are eligible for colposcopy screening.
5. Publication date: Studies published in peer-reviewed journals or as part of academic dissertations till August 2023 when the search was conducted.

The articles included in the systematic review were not just research conducted in Nigeria; this is to have a good knowledge of the context in Nigerian settings as well as outside Nigeria. Studies that highlighted colposcopy as a mode of screening method in the prevention of Cervical Cancer were included because this is the intervention that addresses the research aim and the focus of this scoping review. Also, qualitative, quantitative, and mixed method studies that identified barriers to colposcopy uptake were included. In Evidence Base Practice (EBP), cross-sectional quantitative research is a fundamental component as it emphasises the accuracy of data collection methods, which is critical to answering the research question (Glasper and Rees, 2013). Additionally, studies that analysed colposcopy perception and experiences were also included. Publications with a study population of health care professionals (service providers) and women (service users) comprising of single, married, and divorced women, were also included. This was chosen because women are at risk of cervical cancer in Nigeria (ICO, 2014; Bruni *et al*., 2014). For the purposes of this study, the only publications selected for this review were peer reviewed research articles, with the aim of identifying studies that are methodologically sound. It is important to note that peer reviewed articles were selected because they had been appraised by experts in this field for quality. In addition, only peer reviewed primary studies published in English were included in the review for the purpose of clarity and better understanding. Studies with full text published till 2023 were included as this will provide broad information on the research topic. Full-text articles will give in-depth information about the selected studies.

2.3.3.2 Exclusion Criteria

Studies were excluded if they:

1. Did not focus on colposcopy method of cervical cancer screening, but rather on other cervical cancer screening methods (e.g., Pap smear, HPV testing, VIA).

2. Did not report on the experiences and perceptions of healthcare professionals or patients.

3. Were published after August 2023 due to the timing and integrity of the research process. Because data collection and analysis were completed in early 2024, so it is appropriate for 2023 to be the cut-off point to ensure consistency and completeness of the literature review.

4. Were conference abstracts, editorials, letters, or commentaries without original data.

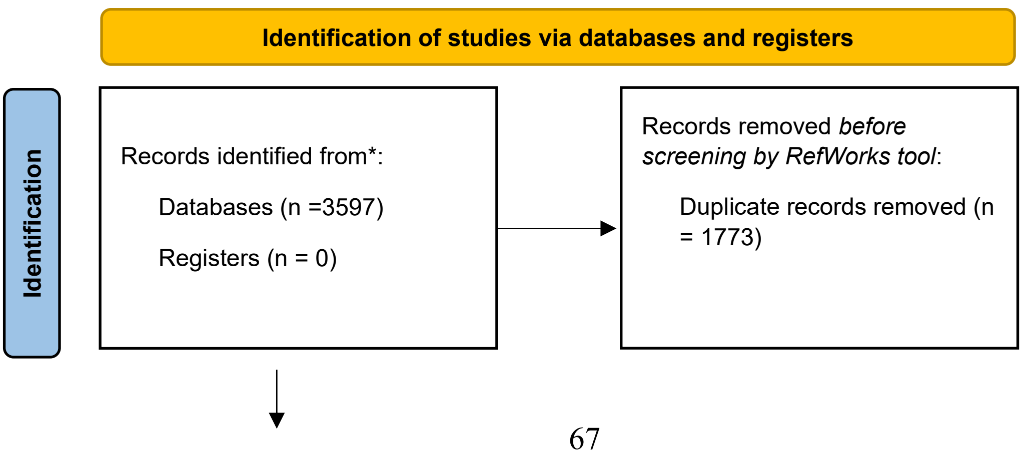
5. Were not published or available in the English language. This is to minimise the risk of misinterpretation of foreign language.

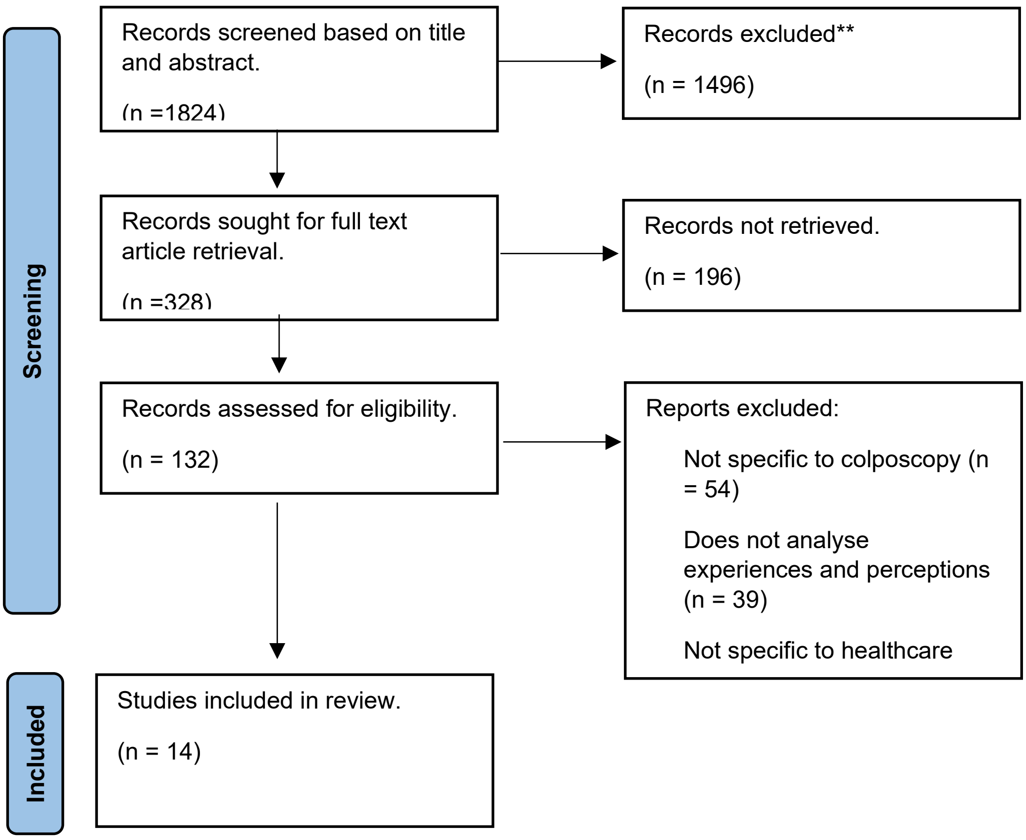
Studies that focused on other screening methods of cervical cancer screening without emphasising or analysing colposcopy were not included. Studies that are not specific to the challenges or barriers to colposcopy screening uptake were excluded. In addition, articles that did not analyse the experience or perception of healthcare professionals (service providers) or women (service users) but focused only on the level of awareness and knowledge of colposcopy were not included as they did not answer the research questions. Publications in foreign languages, due to the cost and time involved in translating materials were not considered. Furthermore, some publications such as non-peer reviewed literature, secondary studies, editorials, commentaries, expert opinions, and policy documents were also excluded as these are not peer reviewed studies.

2.3.4 Search Results/ study selection

The scoping review process, conducted by a single researcher, yielded a total of 3597 initial 'hits' across the searched databases. Using RefWorks Web Reference Management Software, 1773 duplicate and repetitive studies were identified and removed, leaving 1824 unique publications for further screening. A two-stage screening process was implemented to ensure a comprehensive and systematic selection of relevant literature. In the initial phase, the researcher meticulously examined titles and abstracts to assess their alignment with the predefined inclusion criteria. This preliminary screening allowed for the efficient elimination of articles that did not meet the established parameters, resulting in the exclusion of 1496 articles. The remaining 328 articles proceeded to the full-text review stage. Unlike a systematic review, which often employs a dual-reviewer approach, this scoping review was conducted by a single researcher, aligning with the methodology outlined by Arksey and O'Malley (2005). This approach is common in scoping reviews, which typically aim to map the breadth of available evidence rather than synthesise findings from a narrowly defined question (Tricco *et al*., 2016). During the full-text review, the researcher carefully applied the inclusion and exclusion criteria, resulting in the exclusion of an additional 314 articles. The final corpus for the scoping review consisted of 14 articles (see fig 2). To enhance the rigor of the selection process, the researcher maintained a detailed record of decision-making throughout the screening and selection phases, as recommended by Levac *et al.* (2010). This documentation serves to increase the transparency and reproducibility of the review process. It's important to note that unlike systematic reviews, scoping reviews typically do not include a formal quality assessment of individual studies (Peters *et al*., 2015). Instead, the focus is on mapping the range of available evidence, identifying key concepts, and detecting gaps in the research (Munn *et al*., 2018). This scoping review methodology, while conducted by a single researcher, adheres to established guidelines for scoping reviews, ensuring a comprehensive and transparent approach to literature synthesis (Peter *et al*., 2023). The process reflects the iterative nature of scoping reviews, allowing for a broad exploration of the research landscape while maintaining methodological rigor.

Figure 2.1: Diagram showing study PRISMA flow.





2.3.4.1 Quality Assessment of the selected studies

In scoping reviews, the approach to quality assessment differs significantly from that of systematic reviews. While systematic reviews often use quality assessment to weigh and exclude studies based on quality scores (Harden *et al.,* 2004), scoping reviews typically do not include a formal quality appraisal of individual studies (Arksey and O'Malley, 2005). The primary aim of a scoping review is to map the range of available evidence, identify key concepts, and detect gaps in the research, rather than to synthesise findings from a narrowly defined question (Tricco *et al*., 2016). Despite this general approach, there is ongoing debate about the role of quality assessment in scoping reviews. Levac *et al*. (2010) suggest that quality assessment could be incorporated into scoping reviews, depending on the review's purpose. They argue that while not always necessary, quality assessment can add value to scoping reviews by providing context for interpreting findings and identifying methodological limitations in the existing literature.

In this scoping review, a modified approach to quality assessment was adopted. Rather than using quality scores to exclude studies, as is common in systematic reviews, the researcher used quality assessment tools to provide an overview of the methodological rigor of the included studies. This approach aligns with the recommendations of Peters *et al.* (2015), who suggest that while formal quality assessment is not typically part of scoping reviews, researchers may choose to comment on quality of evidence to identify gaps in the evidence base.

The Joanna Briggs Institute (JBI) critical appraisal checklist for prevalence studies (Aromataris *et al.,* 2024) was used as a guide to assess the methodological characteristics of the included studies. However, unlike in a systematic review, the results of this assessment were not used to exclude studies or weigh their importance in the synthesis. Instead, they were used to provide a descriptive overview of the methodological landscape of the included literature. The JBI checklist includes 9 items, with four possible answers (yes, no, not clear, and not applicable). For the purposes of this scoping review, the researcher assigned a score of 1 for "yes" responses, 0 for "no" and "unclear" responses, and excluded "not applicable" items from the calculation. This scoring system was used to categorize studies as high quality (70% and above), moderate quality (50-69%), or low quality (49% and below). It's important to note that in a scoping review, the quality assessment process differs from the dual-reviewer approach often used in systematic reviews. In this case, I conducted the quality assessment independently, which may introduce potential for bias. To mitigate this, I maintained detailed notes on the decision-making process for each study, as recommended by Munn *et al*. (2018). This documentation enhances the transparency and reproducibility of the review process.

The results of the quality assessment indicated that most of the included studies were of moderate to high quality. Among the qualitative studies, 6 (60%) received a high-quality rating, 3 (30%) were deemed moderate quality, and 1 (10%) low quality. In the quantitative studies, 3 (75%) were considered moderate quality, and 1 (25%) high quality. However, in line with the principles of scoping reviews, these quality ratings were not used to exclude studies or weigh their importance in the synthesis. Instead, they were used to provide context for the findings and to highlight areas where methodological improvements could be made in future research. This approach aligns with the recommendations of Daudt *et al*. (2013), who suggest that quality assessment in scoping reviews can be used to identify strengths and weaknesses in the evidence base. The inclusion of a study rated as low quality in this scoping review highlights a key difference between scoping and systematic reviews. In a systematic review, such a study might have been excluded based on quality criteria. However, in a scoping review, its inclusion helps to map the full range of available evidence, including potential methodological weaknesses in the field. This modified approach to quality assessment in a scoping review has both strengths and limitations. On one hand, it provides valuable context for interpreting the findings and identifying areas for methodological improvement in future research. On the other hand, the lack of a second reviewer for quality assessment may introduce potential bias.

In summary, while quality assessment is not typically a formal part of scoping reviews, its inclusion in this review provided valuable insights into the methodological landscape of the included literature. This approach aligns with recent developments in scoping review methodology, which increasingly recognise the potential value of quality assessment in certain contexts (Pham *et al.*, 2014). However, it's crucial to interpret these quality assessments in the context of a scoping review's primary aim: to map the available evidence rather than to synthesise findings or make recommendations based on the strength of evidence.

2.3.4.2 Data extraction and synthesis

In the context of a scoping review, the processes of data extraction and synthesis remain crucial components, though with some modifications to account for the individual nature of the work. Data extraction precedes data synthesis in scoping reviews, much like in systematic reviews. During this phase, I meticulously extracted information about study characteristics and findings from the included studies. The review question guides the tailoring of extraction forms, although the specific details may vary depending on the review's focus (Centre for Reviews and Dissemination, 2008). The data extraction procedure is vital in scoping reviews, as primary studies often differ in their reporting layouts and styles. This necessitates the researcher to highlight and gather the main data elements of interest while providing standardisation (Social Care Institute for Excellence, 2006).

In contrast to systematic reviews, where multiple reviewers typically perform data extraction to ensure consistency and reduce potential biases, a scoping review conducted by a single researcher requires a different approach. The lone researcher must be particularly meticulous and self-aware during the extraction process. To mitigate potential biases, I considered implementing strategies such as:

1. Developing a comprehensive, standardised data extraction form prior to beginning the process.
2. Conducting a pilot test of the extraction form on a small sample of studies to ensure its effectiveness and make necessary adjustments.

3. Regularly reviewing and cross-checking extracted data for consistency and accuracy.

4. Maintaining a detailed log of decisions made during the extraction process.

5. Seeking peer review or expert consultation on a sample of extracted data to validate the process.

The data extraction structure should be designed to collect information needed for analysis and description, including study characteristics, methodologies, participant demographics, and key findings relevant to the review question.

Following data extraction, I proceeded on to data synthesis. This involves the collation, combination, and summary of the findings from the included studies (Centre for Reviews and Dissemination, 2008). In scoping reviews, a narrative synthesis approach is often employed. This method is especially useful when dealing with heterogeneous studies in terms of design, population, and outcome measures.

The purpose of narrative synthesis in a scoping review is to examine the relationships within and between multiple studies using a documentary approach, as well as to assess the robustness of the evidence overall (Centre for Reviews and Dissemination, 2008). To address the review objectives, the key findings from the included studies are summarized and organised thematically.

The synthesis process in a scoping review follows systematic steps:

1. Familiarization with the data through thorough reading and re-reading of the extracted information.

2. Coding of relevant information from the extracted data, assigning descriptive labels to capture key concepts, experiences, and perceptions reported in the studies.

3. Analysis of coded information to identify recurring patterns, similarities, and differences across the included studies.

4. Organisation of these patterns into broader themes and subthemes that capture the overarching experiences and perceptions related to the review question.

5. Review and refinement of the identified themes and subthemes to ensure they accurately represent the findings of the included studies.

In synthesising the findings, the researcher may summarize quantitative studies using descriptive statistics, such as frequencies, percentages, and measures of central tendency. For qualitative studies, key themes and subthemes are identified, often supported by illustrative quotes to enhance interpretation. The synthesis of the review findings in a scoping review aims to offer a comprehensive understanding of the topic under investigation. It highlights key themes, trends, and gaps in the existing literature, providing valuable insights for future research and practice. While the process may be more challenging for a single researcher, maintaining rigorous methodological standards and seeking external validation, when possible, can help ensure the reliability and validity of the review's findings.

Table 2.2: showing the summary of data extraction

S/N	Author/ settings	Title of articles	Aim of the study	Study Design	Sample size/Study population	Quality assessment (JBI checklist)	Intervention/screening method	Key findings	Limitation
A1	(Ali, Salih and Saadoon, 2022) Iraq	Exploring Women's Challenge to Pap Smear Attendance and Colposcopy Referral: A Qualitative Study	to explore women's perceptions and experiences of Pap test and colposcopy examination to avoid advance stage of cervical cancer.	Qualitative face to face semi-structured interview.	22 women attending pap test and colposcopy	Moderate	Pap test and colposcopy	Lack of knowledge and awareness of colposcopy, poor access to colposcopy screening services.	Only women attending Pap smear test and colposcopy were recruited and study done outside Nigeria.
A2	(Chigbu and Aniebue, 2012) Nigeria	Experiences of women undergoing colposcopy in southeastern Nigeria	To evaluate the experiences, preferences, and needs of women undergoing colposcopy in south-east Nigeria.	Quantitative interviewer administered questionnaire	409 women interviewed.	High	Pap test and colposcopy	Invasion of privacy, poor reassurance attitude of the service providers, cost of service, satisfied with overall screening process and reassurance attitude of the healthcare providers.	Recruited only women referred for colposcopy and study conducted in urban setting (Enugu) in Nigeria.
A3	(Chigbu and Aniebue, 2011) Nigeria	Non-uptake of colposcopy in a resource-poor setting	To determine the rate of acceptance/refusal of colposcopy and the reasons for refusal by women referred for the procedure in southeast Nigeria.	Quantitative interviewer administered questionnaire and telephone interview	313 women screened for CC and 154 referred for colposcopy	High	Pap test and colposcopy	Fear of being diagnosed of cancer, fear of compromising fertility and childbearing, religious belief.	Respondents were only women with positive pap test referred for colposcopy and the study conducted in urban settings
A4	(Dawood, 2014) South Africa	Barriers and facilitators to colposcopy attendance following an abnormal pap smear: patient and provider perspectives	to explore barriers and facilitators to colposcopy attendance following an abnormal Pap smear result.	Qualitative telephone and face to face interview	(N=32) 8 Healthcare professionals and 24 patients referred for colposcopy (women)	Moderate	Pap test and colposcopy	Poor knowledge of colposcopy, poor awareness of cervical cancer, poor appointment system, shortage of equipment and staffs, poor transportation, financial constraint.	Respondents were only women with positive pap test referred for colposcopy. The findings may not be true reflection of the population at risk.

A5	(Kola-Palmer, Walsh, and Rogers, 2016) Ireland	Patients' perceptions of colposcopy pain	to examine the sensory descriptors used by women undergoing their first ever colposcopy examination as part of cervical cancer screening.	Quantitative	160 Women attending colposcopy clinic for the first time	moderate	colposcopy	Experienced pain during the colposcopy procedure. Experience discomfort.	Study participants were recruited from one colposcopy clinic, which may limit generalisability.
A6	(Kulkarni *et al.,* 2022) USA	Understanding Perceived Barriers to Colposcopy Follow-Up Among Underserved Women at an Urban Teaching Hospital: A Qualitative Study	to identify perceived barriers to follow-up after abnormal Pap smear among underserved women.	Qualitative interview	24 Women referred for colposcopy	Moderate	Pap test and colposcopy	Poor appointment schedule, Poor knowledge of colposcopy.	Not provided.
A7	(Manley *et al.,* 2017) UK	Unsatisfactory colposcopy: clinical decision-making in conditions of uncertainty	to analyse decision-making when applied to women with unsatisfactory colposcopy.	Qualitative focus group	23 colposcopist (Healthcare professional s)	High	colposcopy	Difficulty and anxiety of missing cancer diagnosis, Poor adherence to clinical guidelines, patient preference/choice.	Assessing practice in one geographical UK region may increase the institutional bias.
A8	(Momberg *et al.,* 2017) South Africa	Women's experiences with cervical cancer screening in a colposcopy referral clinic in Cape Town, South Africa: a qualitative analysis	to explore and understand women's experience with cervical cancer screening and with the referral pathways for abnormal Papanicolaou (Pap) smears.	Qualitative Focus group discussions were conducted with first time colposcopy clinic attendees.	27 Women referred for colposcopy	High	Pap test and colposcopy	Fear, concern, and apprehension during waiting period, low encouragement from peers, Negative community opinion, fear of HIV testing, lack or insufficient information from healthcare providers.	Only women who have accessed healthcare were included and saturation was reached due to small sample size. These may limit generalisability.
A9	(Monteiro *et al.,* 2019) Brazil	Evaluation of the collection service for colposcopy by the SERVQUAL scale	To analyse women's perception of the quality of the service provided for colposcopy test in the city of Belém (PA), Brazil.	Quantitative	400 Women referred for colposcopy	Moderate	Pap test and colposcopy	Poor perception of quality of service, poor healthcare providers attitude and empathy.	Only primary healthcare units were included since the test is also carried out in some other healthcare units.

A10	(O'Connor *et al.,* 2016) Ireland	Exploring women's sensory experiences of undergoing colposcopy and related procedures: implications for preparatory sensory information provision	to explore women's sensory experiences of colposcopy and related procedures and identify factors which influenced negative sensory experiences.	Qualitative in-depth interview	23 Women attending colposcopy clinic for the first time	High	colposcopy	Pain and discomfort, cramping, stinging and cold sensation, Lack of preparatory information.	Participants were recruited from just two clinics, which may limit generalisability.
A11	(O'Connor *et al.,* 2015) Ireland	Understanding Women's Differing Experiences of Distress after Colposcopy: A Qualitative Interview Study	to: (1) examine women's differing experiences of psychological distress and (2) identify factors that are predictive of, or protective against distress following colposcopy.	Qualitative face-to-face using exploratory semi-structured interviews.	23 Women	High	colposcopy	Feeling unprepared for the procedure, negative experience of the procedure and attending the clinic alone, Fear of future infertility, fear of sexual intercourse problems.	Participants were recruited from just two clinics, which may limit generalisability.
A12	(Okonkwo *et al.,* 2013) Nigeria	Physical aftereffects and client's satisfaction following colposcopy and cervical biopsy in a Nigerian population	To explored physical aftereffects experienced and satisfaction of clients after the procedure.	Quantitative used questionnaire	111 women referred for colposcopy	Moderate	Colposcopy	45 (65.2%) women reported vaginal bleeding (spotting), 24 women (34.8%) perceived pain and 12 women (17.4%) reported vaginal discharge following screening.	The relatively small sample size and the setting for the study in a Teaching Hospital require some caution in extrapolating the findings to the general population
A13	(Sharp *et al.,* 2015) UK	Long-Term Worries after Colposcopy: Which Women Are at Increased Risk?	To investigated predictors of worries about cervical cancer, sex, future fertility, and general health during 12 to 30 months after colposcopy.	Quantitative	1515 Women attending colposcopy clinic	High	Colposcopy	Fear of having cervical cancer (40%), fear of having sexual intercourse problem (26%), future infertility (24%) and General health (60%). Anxiety.	could not explore trends in worries over time and were unable to investigate whether different factors predicted outcomes at different points in time.
A14	(Sherman *et al.,* 2016) UK	Colposcopists' experiences of HPV Test of Cure for the follow up of cervical intra-epithelial neoplasia	to investigate the impact the introduction of the TOC protocol has had on colposcopists and their views on patient management.	Qualitative online survey with open ended questionnaire.	191 colposcopist (Healthcare professional s)	Low	Colposcopy	Possible false negative results, Anxiety in women, difficulty adhering to the clinical guideline. 90% comfortable with the procedure and 2% not comfortable.	Not provided.

Table 2.3: Categories emerged from data extraction

Categories/themes	Descriptions
Poor Knowledge and Awareness	Lack of knowledge and awareness of colposcopy, Poor knowledge and awareness of cervical cancer and colposcopy Poor knowledge of colposcopy.
Emotional/physical experiences	Fear of being diagnosed of cancer, fear of compromising fertility and childbearing Invasion of privacy, Experienced pain during the colposcopy procedure. Experience discomfort Anxiety of missing cancer diagnosis Fear, concern, and apprehension during waiting period, low encouragement from peers, fear of HIV testing, Pain and discomfort, cramping, stinging and cold sensation Feeling unprepared for the procedure, negative experience of the procedure and attending the clinic alone, Fear of future infertility, fear of sexual intercourse problems women reported vaginal bleeding (spotting), perceived pain, reported vaginal discharge following screening Fear of having cervical cancer, fear of having sexual intercourse problem, fear of future infertility and general health, Anxiety Anxiety in women, not comfortable with the procedure.
Systemic/Organisational factors	poor access to colposcopy screening services poor reassurance attitude of the service providers, cost of service, satisfied with overall screening process and reassurance attitude of the healthcare providers. poor appointment system, shortage of equipment and staffs, poor transportation, financial constraint Poor appointment schedule Poor adherence to clinical guidelines, patient preference/choice. lack or insufficient information from healthcare providers. Poor perception of quality of service, poor healthcare providers attitude and empathy. Lack of preparatory information. , difficulty adhering to the clinical guideline

Cultural/Religious factors	Religious belief Patient preference/choice. low encouragement from peers, Negative community opinion

2.4 RESULTS

The process of data extraction and synthesis into themes and subthemes was a critical step in this scoping review. It involved carefully analysing and organising the relevant information from the included studies to identify and synthesise the key findings related to the experiences and perceptions of healthcare professionals and patients regarding the use of colposcopy for cervical cancer screening in Nigeria. The studies selected for this scoping review were evaluated using a consistent method of data extraction. The data extraction process was crucial in laying the foundation for the subsequent synthesis and analysis of the findings.

The synthesis process led to the identification of various themes and subthemes that reflect the experiences and perceptions of healthcare professionals and patients. These themes were detailed in the results section of the systematic review, supported by relevant quotes and findings from the studies reviewed. After data synthesis, results were generated in line with the research question. The processes of data extraction and synthesis were meticulous, involving several stages to guarantee the findings' accuracy, reliability, and thoroughness. Employing standardised forms, independent reviewers, and methods based on consensus contributed to reducing potential biases and accurately reflecting the experiences and perceptions of healthcare professionals and patients. In this ScR, the findings from the studies were categorised into two main categories: (I) article characteristics; and (II) the primary findings of the individual studies. The two main categories were, however, further subdivided into sub-categories to provide a more comprehensive summary of the narrative.

2.4.1 Article characteristics

This section explains the methods reported in each of the thirteen primary studies. The 14 included studies were published from 2011 to 2023, with the minority (3/14, 23.1%) published in the last five years (2018-2023). Different study designs were used in the thirteen selected studies. However, some studies presented more detailed information about their sampling process, the process of data collection, method of analysis, consent, ethical issues, and limitations of the study than others. This may be because some of these studies were published in journals with very restrictive word limits. This limited the amount of detailed information provided even if they were conducted within the study.

Most of the studies included were qualitative and observational (8/14) in nature. However, the few studies with quantitative methodology use the scientific/positivism cross-sectional approach as the research underpinning philosophy (Creswell, 2013). In most cases (7/14), surveys or questionnaires were used, with the remainder relying on focus groups (2/14) or interviews (5/14) methods. Surveys are a useful research design for describing the characteristics of a large population and for providing empirical data about real-life situations, thereby increasing the likelihood of data representation (Bryman, 2012). Surveys, however, are prone to errors. For instance, non-random sampling can lead to sampling errors (Creswell, 2013). Using the Risk of Bias Instrument for Cross-Sectional Surveys of Attitudes and Practices, all studies were rated as medium risk of bias. All the studies were descriptive as they sought to identify the experience, perceptions, and challenges of colposcopy screening utilisation.

2.4.2 Location/context setting.

All the fourteen primary studies selected for this scoping analysis were conducted in a wide range of study locations, such as Africa (5/14), Asia (1/14), South America (1/14), North America (1/14), and Europe (6/14). And this cuts across both high- (United States, Ireland, and the United Kingdom) and low-income countries (Brazil, Iraq, Nigeria, and South Africa). The studies conducted in high-income countries are Kola-Palmer, Walsh and Rogers (2016), O'Connor *et al*. (2016), and O'Connor *et al*. (2015), conducted in Ireland, Manley *et al*. (2017), Sharp *et al*. (2015) and Sherman *et al*. (2016) were conducted in the United Kingdom while Kulkami *et al*. (2022) was conducted in the United States of America. Among the studies conducted in low-income countries is Monteiro *et al*, (2019) done in Belem, Brazil. Ali, Salih and Saadoon (2022) was carried out in Kirkuk, Iraq. Dawood (2014) and Monteiro *et al*, (2019) were carried out in Cape Town, South Africa while Chigbu and Aniebue, (2012), Chigbu and Aniebue, (2011) and Okonkwo *et al* (2013) were done in Southern Nigeria, using urban populations. The location settings for these fourteen studies included both urban and rural populations. As a result, it becomes easier to obtain more detailed information and a clearer picture of the perceptions and challenges being studied.

2.4.3 Sampling and population

Study participants in each of the selected studies met the inclusion criteria, which are women and healthcare professionals. It was observed that 11/14 selected studies sampled only service users (women), 2/14 had service providers (healthcare professionals) as respondents, and only a study (Momberg *et al.*, 2017) conducted in South Africa sampled both healthcare providers and patients as respondents. A total of 3,488 respondents participated in the 14 studies selected for this review, less than a quarter 6.4% were healthcare professionals (service providers). While the remainder were service users (women). Majority of the studies did not provide detailed information regarding how the sample size was determined, although the sampling technique used was clearly stated. In contrast, the authors Chigbu and Aniebue, (2012), Chigbu and Aniebue, (2011) and Monteiro *et al*, (2019) provided robust and detailed information regarding how their sample size was determined.

Sampling method and sample size are crucial parts of quantitative research as they provide information on the statistical generalisations that can be made about the results of the study to the wider population (Fox *et al*., 2009). Even though the sample sizes used in the thirteen studies were large enough for the various studies, the ideal sample size depends on the expected variability in data (Creswell, 2013). Large sample size is very crucial as it helps to draw an accurate and correct conclusion as well as increase confidence and reduce error in the results (Nayak, 2010). Although most of the studies failed to clearly state the sampling method, one study, Sharp *et al*. (2015), employed a simple random sampling method to recruit participants. Participants recruited in these studies Ali, Salih and Saadoon (2022), Dawood (2014), Manley *et al*. (2017), O'Connor *et al*. (2016), and O'Connor *et al*. (2015) participants were selected through a purposive sampling process. Creswell (2013) defines purposeful sampling as a non-probability sampling method in which participants are selected because the researcher is certain that they will be able to answer the research question. As a result of the non-random sampling of participants, this method is susceptible to sampling error, which makes it not a true representation of the general population (Fox *et al*., 2009; Creswell, 2014).

2.4.4 Data collection

All thirteen studies employed the appropriate data collection method suitable for the study design. The qualitative studies (10/14) used either in-depth interviews or focus groups to collect detailed and useful information from the participants. While the quantitative studies (4/14) utilised structured questionnaires to gather information on the independent and dependent variables from the participants. Data reliability and validity are crucial measuring tools in data collection as well as analysis as they are used to ascertain the credibility of the study findings (Creswell, 2014). All quantitative studies except Kola-Palmer, Walsh and Rogers (2016) did not state clearly if they ensured validity and reliability by conducting pilot studies and pre-testing the questionnaire, making use of research assistants who can speak the local dialect of study participants where applicable. This was done to eliminate the language barrier. Three of the qualitative studies Dawood (2014), Kulkami *et al*. (2022) and Momberg *et al.* (2017) failed to explicitly state the reliability and validity of the analytical process. Furthermore, none of the quantitative studies showed nor explained how confounders were controlled. Sherman *et al*. (2016) did not state whether the study was reliable or valid. Hence the credibility of the results may not be justified. Most studies (6/14) discussed experience, perception, and challenges to colposcopy utilisation specifically, while about four studies (4/14) analysed only challenges or barriers to colposcopy.

2.4.5 Approaches to analysis.

Most qualitative studies employ thematic analysis in analysing the data. This is one approach that can be employed to identify, evaluate, and organise patterns of opinions within a data set. Six out of the eight qualitative studies used thematic analysis while the others employed other methods of data analysis such as inducive content analysis. All the quantitative studies except Sherman *et al*. (2016) clearly stated the method of data analysis used in analysing the data. Monteiro *et al*. (2019) used Microsoft Excel 2010 software for data analysis, Sharp *et al*. (2015) used logistic regression while Chigbu and Aniebue, (2012) and Chigbu and Aniebue, (2011) analysed their data using SPSS version 12.0 statistical software. The various approaches generate output files from the analysis, check the survey data for inconsistencies and outliers, and conduct a descriptive analysis of the survey data together (Szumilas, 2010).

2.4.6 Ethics consideration of the selected articles

A consideration of ethics in research is very important to ensure the protection of the rights and welfare of participants, as well as to minimize any likelihood of physical and mental discomfort, harm or danger that may result from the research procedures (Creswell, 2014). All the studies except Kola-Palmer, Walsh and Rogers (2016), Manley *et al*. (2017), Momberg *et al*. (2017), Monteiro *et al*. (2019) and Sherman *et al*. (2016) clearly stated to have received ethical approval from the appropriate board of committees and informed consent from the respondents. However, the author of the study, Momberg *et al.* (2017) reported to have obtained informed consent from respondents but did not indicate clearly if ethical approval was sought or obtained from the appropriate body. In contrast, Monteiro *et al*. (2019) report to have obtained ethical approval but did not state if consent was obtained from respondents. Study Sherman *et al*. (2016) did not disclose if ethics considerations such as informed consent, confidentiality, anonymity and right to withdraw at any time were considered or obtained from participants.

2.5 THE PRIMARY FINDINGS OF THE INDIVIDUAL STUDIES

The purpose of this section is to highlight the findings of the scoping review after the critical appraisal: data extraction (deconstruction) and synthesis of data (reconstruction) have been completed. These findings are discussed under the following themes and sub-themes below.

1. Poor Knowledge and Awareness

- Lack of information about procedures
- Limited understanding of disease

2. Emotional Factors

- Fear and anxiety
- Physical discomfort
- Psychological impact

3. Systemic/Organisational Factors

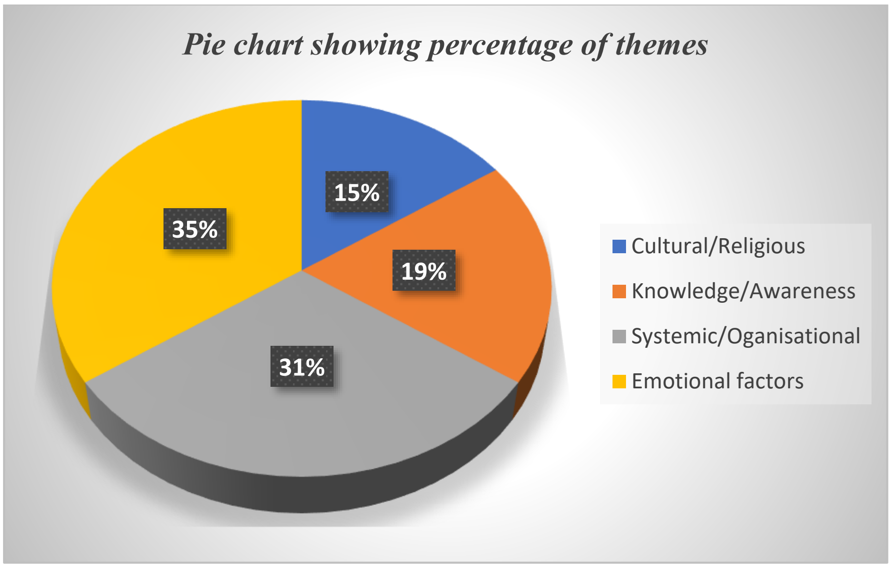
- Access barriers
- Healthcare delivery issues
- Quality of care concerns
- Positive experiences

4. Cultural/Religious Factors

- Community influences
- Personal values and choices

The overall analysis of the findings indicated that emotional factors had the highest (35%) while cultural and religious factors had the lowest outcomes (15%) as shown in the pie chart below. The other factors or themes: systemic/organisational and Knowledge/Awareness had 31% and 19% respectively.

Figure 2.2: Pie chart of the emerged themes



2.5.1. Poor Knowledge and Awareness

The authors highlighted how lack of information about the procedure and limited understanding of the disease affects the utilisation of the colposcopy screening method.

2.5.1.1 Lack of Information About Procedures

Poor knowledge and awareness of colposcopy screening has been identified as a significant challenge to utilisation among women. This knowledge gap could be attributed to inadequate patient educational programmes, limited information materials, insufficient use of multiple communication channels, and limited training for service providers (Thompson *et al.,* 2024). Studies by Ali, Salih and Saadoon (2022) and Kalkurni *et al.* (2022) noted a lack of knowledge and awareness of colposcopy screening among service users. Similarly, Dawood (2014) reported poor knowledge of colposcopy procedures among service providers. The same study identified that a high percentage of women refused to utilize colposcopy screening due to lack of awareness of cervical cancer. Furthermore, Momberg *et al*. (2017) and O'Connor et al. (2016) noted poor or insufficient preparatory information on the screening procedure and risk factors of cervical cancer from healthcare workers as part of women's experiences.

2.5.1.2 Limited Understanding of Disease

Limited understanding of cervical cancer itself contributes to poor colposcopy screening uptake. Dawood (2014) reported that many women refused screening specifically due to their lack of awareness about cervical cancer and its risks. This knowledge deficit affects women's perception of the importance of colposcopy as a diagnostic tool.

2.5.2. Emotional Factors

Emotional factors were among the most noteworthy findings regarding colposcopy screening barriers.

2.5.2.1 Fear and Anxiety

Four studies (Kola-Palmer, Walsh and Rogers, 2016; Okonkwo *et al.,* 2013; O'Connor *et al.,* 2016; O'Connor *et al.,* 2015) reported fear of pain/discomfort during colposcopy screening. According to two studies (Momberg *et al*., 2017 and Sharman *et al.,* 2016), anxiety, apprehension, and fear during the waiting period are of particular concern. Three studies (Chigbu and Aniebue, 2011; O'Connor *et al*., 2015; Sharp *et al*., 2015) discussed fear of infertility/childbearing and sexual intercourse complications from colposcopy screening. Four studies identified fear regarding a potential diagnosis of cancer as a barrier to screening (Chigbu and Aniebue, 2011; Manley *et al.,* 2017; Sharp *et al*., 2015; Sharman *et al*., 2016).

Other emotional barriers include fear of the result, embarrassment, and fear of being tested for HIV, as reported in studies by Chigbu and Aniebue (2012), Manley *et al.* (2017), and Momberg *et al.* (2017). Women expressed fear of attending colposcopy screening because they suspected they would be screened for HIV and that a positive result might mean death for them.

2.5.2.2 Physical Discomfort

Physical discomfort during and after the procedure was widely reported. Okonkwo *et al.* (2013) documented that woman experienced vaginal bleeding and discharge following colposcopy screening. Several studies (Kola-Palmer, Walsh and Rogers, 2016; Okonkwo *et al*., 2013; O’Connor *et al*., 2016; O’Connor *et al*., 2015) highlighted that fear of pain and discomfort during the procedure served as a significant deterrent for many women.

2.5.2.3 Psychological Impact

The psychological impact of colposcopy extends beyond fear and anxiety. O'Connor *et al*. (2015) reported negative experiences of the procedure and the impact of attending the clinic alone without spousal support. Chigbu and Aniebue (2012) indicated that one of the main reasons respondents had not been screened was embarrassment caused by exposing their genitals to either a male doctor who is not their spouse or partner, or to a female health worker who is a stranger.

2.5.3. Systemic/Organisational Factors

Seven of the thirteen studies identified systemic/organisational factors experienced by service providers and service users.

2.5.3.1 Access Barriers

Low accessibility to colposcopy screening services was reported in multiple studies (Ali, Salih and Saadoon, 2022; Dawood, 2014; Kalkurni *et al*., 2022; O'Connor *et al*., 2016) due to lack of preparatory information from service providers, unavailability of screening instruments, and shortage of trained healthcare providers. Transportation difficulties were noted as a barrier to accessing screening centres as reported by Dawood (2014). Cost of screening services and financial constraints were identified as barriers in two studies (Chigbu and Aniebue, 2012; Dawood, 2014), both conducted in lower-income countries (Nigeria and South Africa, respectively).

2.5.3.2 Healthcare Delivery Issues

Participants reported difficulties keeping appointments because of poor communication and appointment systems from service providers. In two studies (Manley *et al.,* 2017; Sharman et al., 2016), healthcare providers found it difficult to adhere to standard clinical guidelines. The shortage of screening instruments and trained service providers further compromised healthcare delivery.

2.5.3.3 Quality of Care Concerns

Monteiro *et al*. (2019) indicated poor perceptions of quality of service as well as a lack of empathy from healthcare providers. Chigbu and Aniebue (2012) reported that invasion of privacy was the most dissatisfying colposcopy experience for respondents.

2.5.3.4 Positive Experiences

Despite various challenges, most women in studies by Chigbu and Aniebue (2012) and Okonkwo *et al*. (2013) reported satisfaction with the overall colposcopy screening process and with the reassurance provided by healthcare providers, contrasting with findings from Monteiro *et al*. (2019) which indicated poor perceptions of quality of service as well as a lack of empathy on the part of healthcare providers.

2.5.4. Cultural/Religious Factors

2.5.4.1 Community Influences

Momberg *et al*. (2017) identified negative community opinions and low encouragement from peers as factors deterring women from utilising colposcopy screening. These social influences created additional barriers beyond individual and systemic factors.

2.5.4.2 Personal Values and Choices

Cultural and religious beliefs significantly impact colposcopy utilisation. In Chigbu and Aniebue (2012), 83.3% of respondents preferred not to be examined by a male colposcopist, as being touched or exposed to a male who is not their spouse is against their cultural and religious beliefs. However, about 90% of the respondents indicated a preference for having their spouse present during the procedure. Similarly, Manley *et al.* (2017) revealed that patient choice is one of the challenges faced by colposcopists during the screening process.

Religious beliefs were highlighted in Chigbu and Aniebue (2011), where some respondents would not attend colposcopy screening because of their faith, instead resorting to spiritual healing. It was also noted that the majority of those who refused were younger (P = 0.029) and nulliparous (P = 0.004) women.

2.6 DISCUSSION OF RESULTS

The findings from the scoping review will critically be discussed in two sections: 1) assessing if the findings from this scoping review answer the research questions and objectives and highlight the concerns arising from the findings. And 2) the process of the appraisal strengths and limitations.

This part of scoping review will critically discuss the results from the fourteen studies and appraise these results with respect to other literature. The perceptions and challenges of colposcopy encompass four themes: poor knowledge/awareness factors, emotional factors, systemic/organisational factors, and cultural/religious factors. The findings from this scoping review support the current literature base regarding the uptake of colposcopy screening among women. Service providers and users are faced with unique challenges regarding the effective practice and utilisation of colposcopy screening services, thus, necessitating interventions tailored to both groups.

These studies highlighted lack of knowledge/awareness barriers such as inadequate knowledge of the colposcopy procedure, lack of awareness of cervical cancer, insufficient preparatory information, and risk factors for cervical cancer. This study showed that 19% of the selected studies reported lack of knowledge and awareness as critically perceived barriers to utilisation of the colposcopy screening service. This finding agrees with the current literature, and this is common in resource poor countries (Ezechi *et al*., 2013; Kolawole 2008; Awodele *et al*., 2011; Ndikom and Ofi 2012; Abotchie and Shokar, 2009; Akujobi *et al*., 2008). The low cervical cancer screening related knowledge reported in this study may be related to the general low literacy level among women in low-income countries as compared to their counterparts in the western world (Mwaka, Wabinga and Mayanja-Kizza, 2013). However, Witteta and Tsua (2008) hypothesized that a lower level of female education is associated with increased maternal and infant morbidity and mortality in resource poor countries. In addition, there is limited knowledge and awareness of cervical cancer among uneducated women in Nigeria regarding the importance and existence of cancer screenings (Arulogun and Maxwell, 2012). In rare cases where services are available, women are not aware of them (Ndikom and Ofi, 2012). There is agreement with the findings of Nwankwo *et al.* (2011) that literacy levels among women, particularly in rural communities in Nigeria, are inadequate, which negatively impacts their quality of life, including access to health care and poor health seeking behaviour. This corroborates the reports of Ezem (2007) that showed a significant association between level of education, cervical cancer, and screening awareness. In contrast, this did not agree with the findings of Oche *et al*., (2013) and Ifemelumma *et al*., (2019) which reported a high level of knowledge about cervical cancer but low uptake of screening. The fact that the study respondents were health care workers may explain the high level of knowledge about cervical cancer. It is possible that their perception of not being susceptible to the disease and not having any immediate health concerns may have influenced their decision to undergo screening. According to Abotchie and Shokar (2009), in a study carried out in Ghana, most women felt that they were not at risk of cervical cancer and therefore would not undergo screening. In Nigeria, studies have reported poor practice among health workers who are expected to be knowledgeable (Nwankwo *et al.,* 2011). Hence, there is a need for advocacy to increase women's health literacy through community health education and awareness, an effective cervical cancer control programme and strategy to improve cervical cancer screening utilisation and early help-seeking for symptomatic cervical cancer (Mwaka, Wabinga and Mayanja-Kizza, 2013; Omotunde and Amosu Ademola, 2020).

Emotional factors were identified to be the most perceived barriers to colposcopy screening utilisation in this systematic review. These factors represented about 33% of the reported perceptions and challenges in the thirteen selected studies. Study participants cited emotional reasons, such as fear of being diagnosed with cancer and fear of being screened for HIV. They also cited fear that the procedure would compromise their fertility/childbearing and sexual output, and anxiety about the screening procedure as perceived obstacles to the uptake of colposcopy screening. The study findings are in support of previous literature (Ndikom and Ofi, 2012; Sandeep, 2012; Arulogun and Maxwell, 2012; Were *et al*., 2011). According to recent studies, Omotunde and Amosu Ademola (2020) and Xue, Ng, and Qiao (2020) found that the main obstacle for women to access cancer screening was the fear of a positive or abnormal screening result, which is often viewed as a death sentence. In previous studies in Uganda (Mutyaba *et al*., 2006) and Owerri, Nigeria (Ezem, 2007), it was found that fear of results and the perception that one is not at risk of cervical cancer are some of the major reasons for not utilising cervical cancer screening services. In addition, most respondents reported feeling embarrassed, pain and discomfort during the screening process. This can be attributed to clients' positioning, the exposure of women's genitals when male healthcare professionals perform colposcopy screening and diagnosis of cervical cancer (Arulogun and Maxwell, 2012). Similarly, women were reported not to undergo cervical cancer screening due to the assumption that insertion of the screening kits into their genitals will elicit pain and affect their reproductive and sexual life (Al Sairafi and Mohamed, 2009). This agrees with the findings from the study conducted in Australian-Chinese, stating that cervical cancer screening equipment is perceived by women as uncomfortable and unbearably painful that will make them cry during the process of screening (Kwok *et al*., 2011). Therefore, the need to advocate for interventions geared towards minimizing pain and anxiety, correcting misconceptions relating to sexual and reproductive life, as well as respecting the client's preference for who screens them.

Some systemic and organisational challenges were identified in this study. Some of the respondents identified poor access to colposcopy screening services, a shortage of trained healthcare professionals, and shortages of screening instruments as challenges. These challenges may lead to delays in providing services to respondents. However, this agrees with the findings from previous studies conducted in Nigeria, stating that most women declined to utilise cervical cancer screening services due to long waiting times (Ifemelumma *et al.,* 2019; Nwobodo and Ba-Break, 2015). Time is very critical because women generally have many obligations to attend to at home because of which, cervical cancer screening may be given less priority (Arulogun and Maxwell, 2012). In addition, colposcopy screening services are sometimes available at centres that are miles away from home, which is quite challenging, especially for people in rural communities where public and private transport are not readily available (Arulogun and Maxwell, 2012). As a result, women are discouraged from taking advantage of screening services. A study conducted by Ndikom and Ofi (2012) found that women do not go to screening services due to the distance to screening centres, which makes it difficult to schedule and keep appointments. This is in accordance with an earlier Swedish study, where non-attendance at cervical cancer screening is strongly associated with time constraints and economic barriers (Eaker *et al.,* 2001). Similarly, Waller *et al*., (2009), in a study conducted in England, reported that young women had a positive attitude towards cervical cancer screening, but had difficulty locating time and arranging appointments. This necessitates improved infrastructure and easy access to health facilities in various communities, particularly in the rural areas of Nigeria. In this study, respondents reported a lack of empathy on the part of service providers, inaccurate diagnoses and difficulty adhering to standard clinical guidelines. Poor quality services may discourage women from attending such hospitals in the future. Trained healthcare professionals, particularly colposcopists, are lacking in Nigeria and many other low-income countries (Kirubarajan *et al.,* 2021; Nwobodo and Ba-Break, 2015). Therefore, policies to train and retain more healthcare professionals, colposcopists and other cancer specialists may lead to improved quality of care and increase service utilisation.

Cultural and religious factors play a key role in the general uptake of health care services in resource poor countries, especially in Nigeria. Majority of the populations in these regions hold their culture and religion in high esteem. This study noted that cultural and religious challenges were highlighted in some of the selected studies (15%), including perceived sex-negative beliefs and invasion of privacy (Chigbu and Aniebue, 2012; Chigbu and Aniebue, 2011; Manley *et al.*, 2017; Momberg *et al.,* 2017). There is evidence that cultural and religious beliefs influence the health seeking behaviour of women, particularly in Asia and Africa (Kivuti-Bitok *et al.,* 2013; Kirubarajan *et al.,* 2021). Because of cultural and religious beliefs, many women are reluctant to use medical services that invade their privacy or require them to expose their genitals to a male health care provider (Kirubarajan *et al.,* 2021; Thomas *et al.,* 2005). This deters them from utilising colposcopy screening programmes. It is aligned with a previous study conducted in Nigeria, which found that most Muslim women in the Northern part of Nigeria refused cervical cancer screening due to religious and cultural beliefs (Kolawole, 2008). Similarly, in a study conducted in Uganda, Busingye *et al.* (2012) reported that 155 of 384 women declined cervical cancer screening because they were concerned about invasion of privacy. Other concerns highlighted by respondents in this study are negative community opinion and poor encouragement by peers. This builds on previous literature that revealed that negative opinions of family and friends discourage some women from taking advantage of cervical cancer screening programmes (Were *et al.,* 2011; White *et al.,* 2012; Kivuti-Bitok *et al.,* 2013). According to Agurto *et al.* (2005) community opinion is a strong weapon and has an association with the health seeking behaviour of an individual. Therefore, a campaign to raise awareness of cervical cancer and colposcopy screening is needed. By involving various stakeholders such as gatekeepers in the health sector, policy makers, religious and community leaders to consider socio-cultural beliefs about the sacredness of women's genitals and the degree of exposure during examinations as well as gender of the health professionals when planning cervical screening.

2.6.1 With reference to main research question and objectives

This review set out to explore the experience and perceived challenges to colposcopy screening utilisation among women in Nigeria. According to the findings, this scoping review revealed that emotional challenges were most frequently reported, followed by systemic/organisational factors, knowledge and awareness factors, and cultural/religious challenges. This is contrary to the expectation of knowledge/awareness taking the lead. However, it could be argued that most of the respondents were women who either were referred for colposcopy due to a positive pap smear test or were on follow-up for colposcopy. Therefore, emotional factors of the target population primarily contributed to poor adherence to colposcopy screening. These challenges are interrelated and dependent on each other. Interventions should, therefore, be designed to address all the challenges identified in order to improve the utilisation of colposcopy screening.

During the literature search for this review, it was observed that most of the research on cervical cancer screening predominantly concentrates on methods such as the Pap smear, visual inspection with acetic acid (VIA), and cytology tests, rather than on colposcopy screening methods. The few on colposcopy screening method were mainly conducted in countries outside Nigeria. The three studies carried out in Nigeria and included in this review based on the inclusion/exclusion criteria were conducted in urban settings in the southern part of Nigeria. Therefore, due to sociodemographic factors such as increasing poverty levels, gender inequality, and low female education, as well as cultural and religious beliefs, the findings may not be applicable in rural settings (Kolawole, 2008). According to Doctor *et al.* (2012), maternal mortality due to cervical cancer and other maternal illnesses is on the rise in Nigeria especially in rural areas. Hence, there is a need to conduct more research on this topic among women living in rural settings. Moreover, this scoping review identified a critical gap in the existing literature: only a single study, conducted in South Africa, incorporated both patients and healthcare providers as participants. This particular study examined the barriers and facilitators of colposcopy attendance following an abnormal Pap smear result. However, the study's recruitment strategy, which primarily included patients referred for colposcopy due to a positive Pap smear test, introduces potential selection bias and limits the generalisability of its findings to the broader at-risk population.

Furthermore, the transferability of these findings to the Nigerian context is questionable due to significant disparities in healthcare systems, socioeconomic factors, and cultural contexts between South Africa and Nigeria. The South African healthcare system, while facing its own challenges, has distinct structural and policy differences compared to Nigeria's, including variations in resource allocation, healthcare workforce distribution, and cervical cancer screening protocols. This methodological limitation underscores the urgent need for comprehensive, context-specific research in Nigeria that encompasses a diverse range of participants, including both healthcare providers and women across the spectrum of cervical cancer risk, not solely those already engaged in the screening process. Such an approach would provide a more nuanced understanding of the barriers and facilitators to colposcopy utilisation in Nigeria, accounting for the country's unique healthcare landscape, cultural norms, and socioeconomic factors.

Future research should employ rigorous qualitative methodologies, such as in-depth interviews and focus group discussions, to capture the lived experiences and perspectives of both healthcare providers and potential service users. This approach would elucidate the complex interplay of individual, community, and systemic factors influencing colposcopy uptake in Nigeria, thereby informing the development of tailored, culturally sensitive interventions to improve cervical cancer screening rates and outcomes in this high burden setting.

An in-depth investigation is required to understand this topic, from both the patient's and healthcare professional's perspective. The review findings were encouraging regarding potential solutions for improving colposcopy screening utilisation. While some barriers, such as fear of a cancer diagnosis or longstanding cultural beliefs, are difficult to overcome, there are also solutions available for others. Some women may have less control over their lives regarding transportation and appointment scheduling, particularly when coordinating with a spouse, babysitting, house chores or school schedules. In addition, there are still many misconceptions associated with colposcopy screening, such as the belief that it can affect sexual activity and childbearing. It was suggested that awareness campaigns targeting opinion leaders, community leaders, and religious leaders at the rural community level are effective (Anshel and Smith, 2013). Campaigns targeting spouses and peers may also be helpful, as studies indicate that family and peer support can positively influence the health seeking behaviour of patients.

Ensuring availability of colposcopy in all health care facilities especially in rural communities at an affordable cost to limit health inequality and enhance easy accessibility. To support these practices, it is necessary to develop policies for cervical cancer screening and to establish a government-sponsored national screening programme. According to Kolawole (2008), health policy contributes to the achievement of specific health care goals within a society, community, state, and the nation. Consequently, effective health policies facilitate the achievement of Sustainable Development Goal 3, which aims to "ensure healthy lives and promote well-being for all at all ages," with specific targets for reducing maternal mortality and ending preventable deaths of newborns and children under 5 years of age by 2030 (United Nations, 2023; Oleribe *et al*., 2022). This alignment between health policy and global development frameworks represents a critical pathway for improving health outcomes in Nigeria and similar contexts (Oladele *et al.,* 2021; Ezeh *et al*., 2022). Therefore, to improve maternal health, HPV vaccination and cervical cancer screening can be promoted through this platform. This policy would undoubtedly result in an increase in cervical cancer screening uptake locally and support the WHO policy on cervical cancer screening at the global level (WHO, 2023).

In addition to further research into interventions, public health educational resources, such as information leaflets, mass media campaigns and public education, as well as evidence-based health promotion strategies are recommended. Furthermore, there is a need for health practitioners to include cervical cancer as one of the topics to be discussed in the clinic, hospitals, and primary health care centres. This is a very significant issue in reproductive health. Aside from policy and programme implementation of colposcopy screening, both the federal and state governments of Nigeria should put policies and plans in place to ensure the increased formal education of the girl-child as these will help to equip and improve a woman's health seeking behaviour and by extension, that of her family thereby reducing gender inequality and maternal and child mortality. Consequently, adequate allocation of resources for broad-based advocacy is necessary.

Similarly, there is a need for the federal and state governments to establish infrastructures, train the necessary manpower and organise elaborate surveillance systems. All of these are essential for the success of the colposcopy screening programme and the reduction of cervical cancer incidence and mortality rate in the country. Furthermore, the government should partner with key stakeholders in the community, such as community-based organisations, faith-based organisations, traditional and spiritual leaders, partners/spouses in encouraging the uptake of colposcopy screening among women, as these groups of people are sometimes more trusted than medical practitioners. There is an apparent need for religious institutions and their leaders to be involved in promoting community health and wellness through their sermons and programmes (Anshel and Smith, 2013).

By addressing the above perceptions and challenges, global health systems can hopefully achieve the goal of zero preventable deaths from cervical cancer as well as the WHO goal of vaccinating 90% of girls with HPV vaccine by the age of 15, screening 70% of women by the age of 35 and 45, treating 90% with the disease. Rural women who undergo hitch-free colposcopy screening are likely to continue the practice as a lifelong habit and to recommend it to their children and peers in the future (Kirubarajan *et al.,* 2021). Furthermore, they are more likely to advocate positive beliefs about the healthcare system, sex-positive beliefs, and regain empowerment regarding their health (Kirubarajan *et al.,* 2021). As such, every woman who is screened offers a chance of strengthening a community around reproductive health.

2.6.2 Strengths and limitations

2.6.2.1 Strengths:

This scoping review's primary strength lies in its comprehensive and methodologically rigorous approach. The utilisation of multiple databases with broad search criteria maximized the inclusion of relevant evidence. The review encompassed studies from diverse geographical contexts, spanning low-, middle-, and high-income countries, thus providing a global perspective on colposcopy utilisation. This approach allowed for a nuanced understanding of the factors influencing colposcopy screening across various healthcare systems and socioeconomic contexts. The inclusion of fourteen studies with diverse study populations enhanced the review's breadth and depth. Most studies focused on either patients (service users) or healthcare professionals (service providers), providing insights from both perspectives. However, this also highlights a gap in the literature, as only one study incorporated both healthcare professionals and patients as respondents, albeit with limitations in its sampling strategy.

2.6.2.2 Limitations:

Several methodological constraints must be acknowledged: 1) Language and Database Restrictions: The search strategy was limited to English-language publications and specific databases, potentially excluding relevant studies published in other languages or indexed in alternative databases. This limitation may introduce language and publication bias, potentially skewing the findings towards English-speaking contexts. 2) Methodological Quality: The variable methodological quality of included studies may impact the reliability and generalisability of the results. Some studies, particularly cross-sectional designs, rank lower in the hierarchy of evidence, potentially limiting the strength of conclusions drawn. 3) Single Researcher Bias: The review was conducted by a single researcher, which may introduce bias in study selection, data extraction, and interpretation. The lack of multiple perspectives in the review process could potentially limit the robustness of the analysis. 4) Publication Bias: The potential for publication bias, wherein studies with positive results are more likely to be published, may skew the overall findings. This bias necessitates cautious interpretation of the results and conclusions. 5) Limited Access to Full-Text Articles: Challenges in accessing relevant full-text, peer-reviewed electronic journals of high academic quality may have restricted the inclusion of potentially valuable studies. While mitigated by diverse electronic databases, this limitation may affect the comprehensiveness of the review. 6) Sample Size of Primary Studies: The review's reliance on fourteen primary research publications, while providing valuable insights, may limit the robustness of the data and the validity of conclusions. A larger sample of primary studies could have potentially yielded more comprehensive and generalisable findings. 7) Methodological Flaws in Primary Studies: Some included studies exhibited design flaws, such as inadequate reporting of reliability and validity measures, potentially compromising the quality of evidence. These limitations underscore the need for cautious interpretation of the findings and highlight areas for future research, particularly the need for rigorous, context-specific studies in Nigeria that address the identified gaps in the current literature.

2.6.2,3 Research questions

Findings of the critical analysis of the scoping review informed the development of the research question; how does the lived experiences and perceptions of both service users and healthcare professionals interact with systemic barriers to influence the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural areas?

With the following sub-questions:

- What are the patients (service users) perceptions and experiences of colposcopy cervical cancer screening?
- What are the health care professionals (service providers) experiences and perception of colposcopy cervical cancer screening?
- What are the possible barriers or challenges affecting colposcopy cervical cancer screening services and utilisation among women in rural areas?

2.7 SUMMARY OF THE CHAPTER

A detailed explanation of the background to the study is provided in this chapter. Research parameters that are currently being examined regarding the utilisation of colposcopy as a screening tool for cervical cancer were presented. It was suggested that there is an ongoing need for further research into the uptake of colposcopy cervical cancer screening in the future. This chapter addressed the specific need to capture and better understand women's experiences to generate enriched knowledge and understandings for practice purposes. My worldview will be contextualised in the next chapter through the discussion of ontological and epistemological considerations. Particularly, it explores the way in which these factors shaped the research question and the methodology chosen for the study.

CHAPTER THREE

PHILOSOPHICAL AND METHODOLOGICAL APPROACH

This chapter provides the underpinning philosophical and methodological stages used in this research. In this chapter, ontology and epistemology are defined in relation to research paradigms and worldviews. It is important to consider both ontological and epistemological considerations when conducting social research, as well as how these concepts influence the research process. In this chapter, the rationale for selecting the ontological and epistemological framework that supports the chosen methodology is also presented and referred to as the philosophical foundation of the study. An explanation of the rationale for selecting the chosen methodology, including its ontological and epistemological assumptions, is provided.

3.1 INTRODUCTION

According to Crotty (1998), the foundation of the philosophical stance within the chosen method justifies conducting research in a particular way. Creating a set of guiding assumptions that inform the research process is essential, according to Guba and Lincoln (1999). Qualitative research aims to understand how individuals construct meaning and interpret their experiences within contexts. The philosophical beliefs a researcher holds about the nature of reality (ontology) and knowledge (epistemology) fundamentally impact research inquiry. Ontology and epistemology are philosophical concepts that guide how qualitative researchers think about reality and knowledge (Scotland, 2012). Ontology refers to the nature of reality and what can be known about reality. Epistemology refers to beliefs about how knowledge is created and how we can obtain valid knowledge about reality (Creswell and Plano-Clark, 2011). Constructivism and phenomenology offer compatible ontological and epistemological perspectives that reject notions of a single, objective reality and value subjective experiences and socially constructed meanings. When combined, they provide an insightful framework for qualitative research (Creswell and Plano-Clark, 2011; Scotland, 2012). Constructivism and phenomenology are two key philosophical perspectives that inform qualitative research methodology (Creswell and Plano-Clark, 2011).

This section first defines ontology and epistemology overview of constructivist ontology and epistemology and how they shape phenomenological approaches to qualitative research. It will explain how phenomenology aims to study lived experiences and bring conscious meaning to them. It will also illustrate how constructivist phenomenology rejects positivist notions of an objective, external reality in favour of understanding subjective realities constructed by individuals. It then illustrates how constructivist and phenomenological assumptions synergise to support an interpretive approach to qualitative research as well as explaining key theoretical principles including intersubjectivity, researcher reflexivity, emergent flexible design, thick descriptive data, and meaning co-construction. It details qualitative methods consistent with constructivist phenomenology. Examples will demonstrate how a constructivist phenomenological methodology translates into specific research methods and analysis techniques aimed at illuminating lived experiences. Finally, it provides a rationale for why this interactive, subjectivist methodology enables rich understandings compared to objectivist approaches. There is also a discussion of my position, viewpoint, sensitivity, and ethical considerations. This includes study design, study settings and population, sampling strategy, data collection and analysis. It also addressed ethical issues and the limitations of the study.

3.2 RESEARCH PARADIGM

A research paradigm according to Adom, Yeboah and Ankrah, (2016) is a basic belief or way of looking at the world through perceptions, interpretations and understanding. It is made up of certain philosophical assumptions that guide and direct researchers thinking and actions. It is perhaps a very complex or impossible task trying to categorise all educational and psychological research into a few paradigms. However, there are two main broad theories (positivism and interpretivism) that have given rise to numerous philosophical paradigms (Rehman and Alharthi, 2016; Adom, Yeboah and Ankrah, 2016). To answer the research questions, constructivism paradigm, which is a type of interpretivist paradigm of philosophy, is adopted as the most appropriate. The choice of this approach is to allow participants to construct new knowledge from their experiences. This knowledge is to enable participants to understand and interpret the subjective world of the subject and participant being investigated (Rehman and Alharthi, 2016; Adom, Yeboah and Ankrah, 2016). All knowledge in this study is constructed within pre-existing social context through interactions between the researcher and participants by dialoguing, questioning, listening, and recording research data (Rehman and Alharthi, 2016).

3.2.1 Ontological and epistemological considerations of the enquiry

In order to conduct social research effectively, it is imperative to address ontological and epistemological considerations. These concepts are discussed in relation to their influence on the research process. This section provides background information on the selected ontological and epistemological framework, also known as the philosophical foundation for the study.

3.2.1.1 Defining ontology and epistemology

Ontology concerns philosophical assumptions about the essence of reality and existence (Scotland, 2012). What is real? What is the nature of reality and being? Ontological beliefs shape how one engages with the world. Epistemology deals with theories of knowledge and how we can attain valid, trustworthy knowledge (Hofer and Pintrich, 1997). Epistemological assumptions guide how a researcher thinks about constructing knowledge. Ontology and epistemology are intrinsically connected - beliefs about reality inform beliefs about knowledge.

A researcher's ontological and epistemological stances establish the philosophical foundation for how they approach inquiry. These metaphysical perspectives determine what kinds of knowledge claims are possible and how meaning can be created from data (Scotland, 2012). The ontological and epistemological orientations adopted establish parameters for appropriate research methodologies and data analysis. Grasping a study's underpinning philosophical assumptions is key to understanding the research process and assessing the legitimacy of findings. When embarking on any academic enquiry the need for the researcher to consider their individual beliefs, or 'worldview', also referred to as ontology and epistemology, is acknowledged in the literature (Creswell and Plano-Clark, 2011). The issue of ontology and epistemology is contentious. Despite general agreement on what the terms mean, there is little agreement regarding the positions researchers adopt ontologically and epistemologically or the relationship between the two. These terms have therefore been defined. An ontology may be defined as "The science or theory that deals with the principles or nature of being." (The word derives from the Greek for 'existence') (Chambers, 2011). From an ontological perspective, my stance is relativist, acknowledging the existence of multiple realities that are socially constructed and shaped by individual contexts and perspectives (Guba and Lincoln, 1994).

Epistemologically, I embrace a descriptive, constructivist approach, believing that knowledge is jointly constructed through the interaction between researchers and participants (Lincoln and Guba, 2013). Cosmologically, this research aligns with the naturalistic paradigm, examining the phenomenon of colposcopy screening in its authentic real-world context, free from manipulation or control (Patton, 2015). The objective is to comprehend the lived experiences, meanings, and contexts that shape healthcare professionals' and patients' perceptions and engagement with this screening practice (Creswell and Poth, 2018). Qualitative methods like interviews and observations are appropriate for delving into the depth and subtleties of participants' personal experiences and the socio-cultural dynamics influencing them (Braun and Clarke, 2006). As a researcher, maintaining reflexivity and transparency regarding my positionality is crucial to ensuring the research's trustworthiness and credibility (Lincoln and Guba, 1985).

The concept of ontology refers to our understanding of what reality or truth is and how we determine it (Patton, 2002). Acknowledging one's ontological and epistemological positions is crucial in research. An ontological position describes the researcher's view of the nature of reality, while an epistemological position describes how the researcher believes knowledge is acquired and validated. As a researcher with a relativist ontological stance, I recognise that reality is subjective and can vary based on individual perspectives, cultural contexts, and social constructions. This view has significantly influenced my approach to research and the choices I've made in my study. My relativist ontology led me to consider multiple truths and realities rather than seeking a single, objective truth. This perspective acknowledges that different individuals or groups may have varying interpretations of the same phenomenon, all of which can be valid within their respective contexts. Consequently, I was drawn to research methodologies that allow for the exploration of diverse viewpoints and experiences. This ontological position also influenced my epistemological approach. I lean towards a constructivist or interpretivist epistemology, which aligns well with relativist ontology. This perspective suggests that knowledge is constructed through social interactions and interpretations rather than being discovered as an external, objective reality. My relativist stance has shaped my research design in several ways:

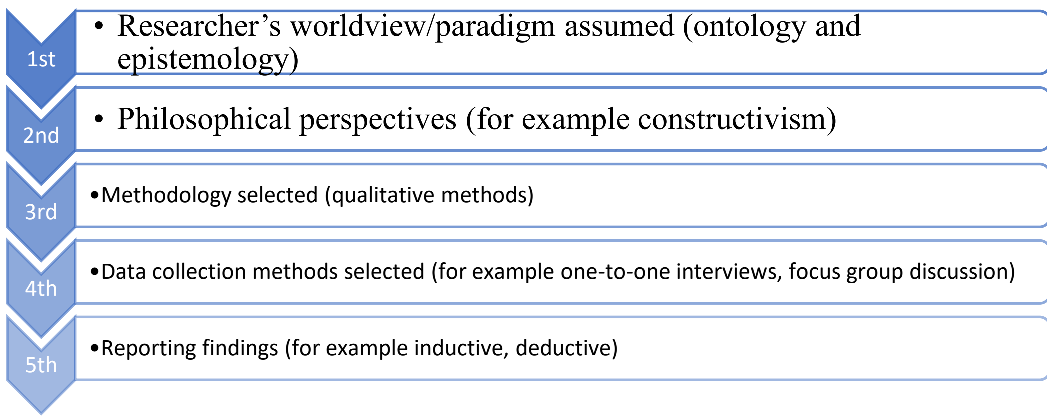
Choice of qualitative methods: I opted for qualitative research approaches that allow for in-depth exploration of subjective experiences and meanings. Focus on context: My research design emphasises the importance of understanding the specific contexts in which phenomena occur, recognizing that reality is context dependent. Emphasis on participant perspectives: I prioritize gathering and interpreting data from the viewpoints of the research participants, acknowledging their unique realities. Reflexivity: I maintain a reflexive approach throughout the research process, continuously examining how my own beliefs, values, and experiences might influence my interpretations. Multiple data sources: To capture diverse perspectives, I incorporate various data collection methods and sources. Interpretive analysis: My data analysis focuses on understanding and interpreting meanings rather than seeking generalisable, universal truths. Presentation of findings: In reporting results, I emphasise the multiplicity of perspectives and avoid presenting a single, definitive conclusion.

My worldview, formed by the combination of our ontology and epistemology, is indeed influenced by our experiences of 'being in the world' both past and present, as well as our beliefs, values, and motivations for future generations. As a relativist researcher, I recognise that these factors not only shape how I view the world but also how I approach research, make methodological decisions, and interpret findings. By acknowledging and reflecting on my relativist ontological stance, I aim to conduct research that is transparent about its philosophical underpinnings and respectful of diverse realities. This approach allows for a rich, nuanced understanding of complex social phenomena, while also recognizing the limitations and potential biases inherent in any research endeavour.

3.2.1.2 The influence of ontology and epistemology on the research process

In social research, the researcher's worldview influences the purpose of the study, the formulation of the research question, the choice of methodology, and the methods used for collecting data (Marks and Yardley, 2004). Below is an illustration of how this influence affects the research process:

Figure 3.1: An illustration of the effects on research process.



The definition of truth and its relation to the nature of reality in social research have long been debated ontologically (Lincoln and Guba, 1985; Wilkinson, 2011). Research designs are generally categorised into quantitative, qualitative, or mixed methods paradigms, each grounded in different ontological and epistemological beliefs (Vasilachis de Gialdino, 2009; Creswell and Plano Clarke, 2011). Quantitative researchers often hold the view that an objective reality exists independently and can be uncovered through structured, rigid methodologies like experimentation (Robson, 2002). Known as positivists for their faith in scientific methods (Lincoln and Guba, 1985; Gadamer, 2004), they typically assume the role of impartial observers, enforcing strict controls in their research to manage and eliminate variables from their study. This approach aims to achieve objective truths, such as statistical significance or causal relationships (Lincoln and Guba, 1985). The separation of variables in experimental designs stems from Cartesian dualism, which sees the mind and body as separate entities, not influenced by an individual's thoughts, culture, or nature (Harrington, 2005). However, this concept has been critiqued by contemporary social researchers for failing to adequately capture the complexity and context of human experiences (ibid.). Notably, dualism also underpins medicine's development and the biomedical model.

3.2.1.3 Defining the concept of truth across various worldviews for researchers

The definition of truth and its relation to the nature of reality has long been debated in social research (Lincoln and Guba, 1985; Wilkinson, 2011). Research methodologies are generally categorised into quantitative, qualitative, or mixed methods paradigms, each grounded in different ontological and epistemological beliefs (Vasilachis de Gialdino, 2009; Creswell and Plano Clarke, 2011). Quantitative researchers often subscribe to the notion that an objective reality exists independently and can be uncovered through structured, rigid experimental designs (Robson, 2002). Positivists, who value the scientific method, typically assume the role of impartial observers, applying stringent controls to their research to manage and eliminate variables. This approach is believed to facilitate the discovery of objective truths, such as statistical significance or causal relationships (Lincoln and Guba, 1985). The separation of variables in experimental research is influenced by Cartesian dualism, which views the mind and body as separate, non-interacting entities, independent of an individual's thoughts, culture, and nature (Harrington, 2005). Dualism, though foundational to medicine and the biomedical approach, allowing an 'observer' to study a 'subject' dispassionately, has been criticized by modern social researchers for failing to grasp the complexity and context of human experience. Qualitative researchers, embracing a nondualist perspective, recognise the interplay of variables and their collective impact on human experience. They reject the idea of a singular objective truth, instead advocating for the existence of multiple realities. Ontologically and epistemologically, qualitative researchers value engaging with participants in a 'subject to subject' partnership within an inter-subjective space, aiming for a transformative co-production of rich data that enables a deeper understanding of experiences. Proponents of mixed methods research see value in integrating qualitative and quantitative approaches in the human sciences, despite the challenges in reconciling differing ontologies and epistemologies when combining data types to address the same research question.

3.2.2 Phenomenology

Phenomenology is a philosophical perspective as well as an approach to qualitative research methodology. Phenomenology is a school of philosophical thought centred on lived experiences of humans and bringing conscious meaning to those experiences (Van Manen, 1990). It aims to describe and interpret the essence of phenomena from the perspective of those directly experiencing them through thematic analysis of participant descriptions (Wojnar and Swanson, 2007). Phenomenology is an ideal qualitative approach for this research as it focuses on understanding the lived experiences and perspectives of individuals regarding a particular phenomenon (Creswell and Poth, 2018). In this case, the phenomenon under study is the colposcopy screening method for cervical cancer detection. By employing a phenomenological methodology, the researcher can delve into the firsthand accounts and subjective meanings that healthcare professionals and women attribute to their experiences with colposcopy screening. This approach allows for an in-depth exploration of their perceptions, emotions, beliefs, and the contextual factors that shape their views and attitudes towards this screening method (Moustakas, 1994). Phenomenological interviews would enable participants to describe their personal experiences with colposcopy screening in rich detail, providing insight into the various facilitators and barriers they encounter. This could reveal important cultural, social, or healthcare system factors influencing screening uptake and delivery in the Nigerian context.

Furthermore, phenomenology's emphasis on bracketing the researcher's preconceptions and biases allows for a fresh perspective on the phenomenon, ensuring that the participants' voices and lived realities are truly captured (Creswell and Poth, 2018). This is particularly important when exploring a sensitive and personal health issue like cervical cancer screening. By adopting a phenomenological approach, the researcher can gain a deep, contextualised understanding of healthcare professionals' and women's experiences and perceptions, which can inform strategies to improve the accessibility, acceptability, and utilisation of colposcopy screening services in Nigeria (Lopez and Willis, 2004).

3.2.3 Reflexivity and study design

Initially, I considered a mixed methods approach to investigate the experiences and perceptions of healthcare professionals and women with the colposcopy method of cervical cancer screening, guided by the concept of biographical disruption (Bury, 1982). This consideration was partly due to my access to a database with quantitative data on aspects like cervical cancer screening uptake and impact levels. It also contained some qualitative data, which piqued my interest, such as individuals' expectations of the service. I believed that a secondary analysis of this data, supplemented by semi-structured interviews, would partially capture the lived experiences of service providers and recipients. However, as I attempted to derive biographically disruptive narratives from secondary data, I realized that my research question necessitated a data-driven approach. With guidance from my supervisor, I understood that I needed a methodology aligned with my exploratory goals. My supervisor recommended descriptive phenomenology, drawing me to Edmund Husseri and Amedeo Giorgi philosophy (Creswell and Poth, 2018). Consequently, I moved away from a theoretically driven, mixed-methods strategy and secondary data analysis towards a descriptive phenomenological approach. I am convinced this shift was the right choice to ensure a cohesive alignment between the research design, its objectives, and the central question.

3.2.4 Alignment of the interpretivist paradigm with research topic, objectives, and methodology

The experiences and perceptions of colposcopy as a method for cervical cancer screening in Nigeria, as outlined in the literature review, provide a broad overview of the phenomenon under study. However, the interpretation and impact of these experiences may vary significantly among healthcare professionals and women, depending on their individual contexts, cultural backgrounds, and personal beliefs. What one healthcare professional or woman perceives as a barrier or facilitator to colposcopy screening may differ from another's experience in a different setting or cultural context. The interpretivist paradigm aligns well with this research topic, as it acknowledges that reality is subjective and socially constructed (Creswell and Poth, 2018). Each individual's experience and perception of colposcopy screening is shaped by their unique understanding of reality, influenced by factors such as cultural norms, personal beliefs, and social context. Therefore, it is essential to investigate the experiences and perceptions of both healthcare professionals and women regarding colposcopy screening in Nigeria, while also examining the specific challenges and resources particular to this research setting. The research questions and objectives, which aim to explore and understand the lived experiences of healthcare professionals and women in relation to colposcopy screening, are congruent with the guiding principles of the interpretivist paradigm. These questions cannot be answered independently by the researchers but require direct engagement with participants to co-construct knowledge. This approach adheres to the principles of contextualisation and symbolic interactionism within interpretivism (Blumer, 1969; Denzin, 2001). The interpretivist paradigm informs the methodological choices, addressing questions such as "How can knowledge of participants' experiences and perceptions be gained?" and "What methods will best capture the subjective meanings ascribed to colposcopy screening?" These considerations lead to the selection of qualitative methodologies that allow for in-depth exploration of participants lived experiences.

Consequently, this study employs a qualitative methodology, utilising methods such as in-depth interviews with women and focus group discussions with healthcare professionals. These methods enable the researcher to collect rich, descriptive data that captures the nuanced experiences and perceptions of participants. The analysis and interpretation of this data will be conducted through an interpretivist lens, acknowledging the co-construction of knowledge between the researcher and participants and the importance of context in shaping experiences. This methodological approach aligns with the interpretivist paradigm's emphasis on understanding phenomena through the perspectives of those who live it, allowing for a comprehensive exploration of the complex factors influencing colposcopy screening experiences in Nigeria. By embracing this paradigm and corresponding methodology, the study aims to generate deep insights into the challenges, facilitators, and cultural nuances surrounding colposcopy screening, potentially informing more effective and culturally sensitive cervical cancer screening practices in Nigeria.

3.3 RESEARCH METHODOLOGY

Methodology refers to the underlying principles and theoretical concepts that shape and direct the research process (Taylor and Bogdan, 2014). Within qualitative research, there is a rich variety of methodological approaches, each with its own strengths and viewpoints. The ideal approach for this study would be one that emphasises the examination of human experiences, actions, and interactions in their complex contexts. After evaluating various qualitative methodologies, such as ethnography, grounded theory, case studies, phenomenology, and narrative inquiry, their advantages and drawbacks were critically assessed. Although these methods commonly utilize in-depth interviews for data collection, they differ in their analytical emphasis and philosophical foundations. The outcomes of qualitative interviews are often the detailed and nuanced narratives of participants, which convey their knowledge, experiences, and views on the research subject. These stories provide insight into the participants lived or subjective experiences, laying the groundwork for further analysis and interpretation. After a comprehensive review of these methods, phenomenology was chosen as the most fitting for this study. In contrast to grounded theory, which seeks to develop theory from the data, or ethnography, which examines a group's shared culture, or narrative inquiry, which focuses on personal stories, phenomenology concentrates on the core of lived experiences and the meanings individuals attribute to them (Creswell, 2013). The adoption of phenomenology as the methodological framework for this research is based on its ability to reveal the core essence of a phenomenon through the collective experiences of individuals. This method is in harmony with the study's goals, facilitating a thorough and detailed examination of subjective human experiences pertinent to the research subject. The focus of phenomenology on articulating and interpreting the actual experiences of participants establishes a solid structure for discovering the intrinsic patterns and significances of the phenomenon being studied. Moreover, according to Creswell and Poth, (2018), the philosophical underpinnings of phenomenology, grounded in the works of Husserl and Heidegger during the 20th century, provided an advanced theoretical perspective for analysing the relationship between individual experiences and the wider sociocultural milieu. This methodological selection allows the researcher to delve into the data with the depth and intricacy that doctoral research demands, enabling the emergence of new insights and contributions to the academic field. By utilising phenomenology, the study seeks to go beyond simple description and aims for a comprehensive, interpretative analysis that exposes the fundamental characteristics of the phenomenon as lived by the participants. This strategy not only meets the research objectives but also equips the study to offer substantial theoretical and empirical advancements to the discipline, meeting the stringent criteria of doctoral research.

3.3.1 Rationale for choosing a qualitative methodology.

The rationale for selecting a qualitative methodology lies in its ability to provide a richer and more complete description of the subject matter. It is particularly effective at capturing the lived experiences of participants and understanding the context of their lives, which quantitative methods may not fully reveal. Qualitative research methods are chosen to illuminate factors absent from existing literature and to understand the meaning of human phenomena through the lived experiences of individuals. This study was undertaken to explore the perceptions of healthcare professionals and women regarding the colposcopy screening method for cervical cancer. It also explored its impact on the uptake of this screening method in rural areas. With an awareness of my own worldview, my aim was not to pinpoint a singular truth, establish causal links, or offer hypotheses for testing. Instead, I wanted to co-create an understanding of the varied realities of colposcopy perceptions in rural areas. This means I (researcher) wanted to jointly develop (with participants) a comprehensive understanding of how colposcopy procedures are perceived differently by people living in rural areas, acknowledging that rural populations may have varied experiences and viewpoints about this gynaecological examination. Guided by my ontological viewpoint, I adopted a qualitative naturalistic methodology as outlined by Lincoln and Guba in 1985. Recognizing the diversity of qualitative designs in existing literature, I chose phenomenology as the ontological and epistemological groundwork for this research. This aligns with the investigative nature of my research question concerning the essence of experiences. The process of selecting this approach involved extensive literature review and engagement with Edmund Husserl's philosophical contributions during the 20th century (Creswell and Poth, 2018). This culminated in a year-long journey to grasp phenomenology, which intriguingly echoed my personal worldview. I discovered the spectrum of phenomenological forms, from the initial positivist or quantitative strand to descriptive phenomenology, termed descriptive psychology by Edmund Husserl, the pioneer of phenomenology (Creswell and Poth, 2013).

3.3.2 Adoption of phenomenology as the methodological approach for the current study

Phenomenology holds a pivotal role in the interpretivist paradigm as both a philosophical discipline and a research approach (Webb and Welsh, 2019). Originating from early 20th-century European philosophy, it utilises real-world experiences and detailed descriptions to shed light on the importance of phenomena, concepts, or ideas as directly experienced by individuals (Sokolowski, 2000). The goal of this methodology is to reveal the core of lived experiences, offering crucial insights to various stakeholders such as policymakers, researchers, and healthcare professionals (Creswell and Creswell, 2017). Phenomenology is based on the ontological view that reality is complex and subjective, understood through an in-depth analysis of personal experiences (Starks and Brown Trinidad, 2007). This foundation supports the study's view that reality is not singular or objective. Instead, phenomenology suggests that meaning emerges from engaging with different realities across space and time, an idea known as relativity (Starks and Brown Trinidad, 2007). When adopting a phenomenological interpretive strategy, it is essential to consider two main goals: (a) the descriptive phenomenological task of comprehending and articulating participants lived experiences, and (b) the interpretive task of situating these experiences within wider socio-cultural or theoretical contexts (Larkin, Watts and Clifton, 2006). This dual emphasis mirrors the progression of phenomenology from its descriptive origins, as represented by Husserl, to the interpretive lineage promoted by Heidegger. Heidegger's significant impact on phenomenology is evident in his concepts of "being there" (Dasein) and the interactive relationship between an individual and their "lifeworld" (Bloomberg and Volpe, 2018), marking a departure from purely descriptive methods. The distinction between descriptive and interpretive phenomenological methods is particularly pronounced in the generation of findings and the assimilation of these findings into established professional knowledge (Penner and McClement, 2008; Webb and Welsh, 2019). Descriptive phenomenology aims to set aside biases to uncover the core of experiences, whereas interpretive phenomenology accepts that complete impartiality is unattainable and instead values the researcher's role in interpreting participants' experiences. This intricate grasp of phenomenology's philosophical underpinnings and methodological consequences is vital for doctoral research. It promotes a refined interaction with the intricacies of human experience, enabling an analytical depth that transcends simple description to provide interpretative insights that greatly enhance theoretical and practical understanding in the discipline. By employing this phenomenological stance, the present study seeks to make meaningful contributions to the comprehension of the phenomenon being examined. This methodological approach allows for an in-depth investigation of lived experiences within a wider theoretical context, meeting the research's expectations for theoretical depth, methodological thoroughness, and the possibility of novel contributions to knowledge

3.3.3 Rejecting other forms of phenomenological approach

To examine the personal experiences of healthcare professionals and women regarding colposcopy screening, the chosen methodological approach is descriptive phenomenology, rather than interpretive phenomenology or generative phenomenology. Interpretative phenomenology aims to understand individuals lived experiences and their attributed meanings to phenomena (Lopez and Willis, 2004); however, it might not be the ideal approach for this research topic. The objective of this study is to investigate not just the subjective experiences but also the wider contextual factors influencing perceptions and the use of colposcopy screening. Interpretative phenomenology tends to concentrate on the individual's subjective experience, placing less focus on the social, cultural, and systemic contexts that affect the studied phenomenon (Creswell and Poth, 2018). However, for cervical cancer screening, factors like cultural beliefs, access to healthcare, and policies of the healthcare system are expected to significantly influence perceptions and experiences.

A constructivist approach, which involves the joint construction of knowledge and recognises the impact of social, cultural, and historical contexts, might be more apt for addressing the complexities of this research topic (Lincoln and Guba, 2013). Constructivism is also in line with the aim to examine diverse viewpoints from healthcare professionals and women, instead of concentrating solely on individual lived experiences. Furthermore, the focus of interpretative phenomenology on setting aside the researcher's preconceptions and biases (Lopez and Willis, 2004) could be problematic in this scenario, where the researcher's own positionality and cultural background could inherently affect data interpretation.

By rejecting interpretative phenomenology and adopting a constructivist approach, I can more thoroughly investigate the dynamics between individual experiences, perceptions, and the extensive socio-cultural and healthcare system contexts that influence the use of cervical cancer screening in Nigeria (Patton, 2015).

3.3.4 Philosophical perspectives

The rationale for the study provided above suggests that a qualitative approach would be suitable, as it permits the study of certain situations and events through the use of a descriptive, rational, and unstructured approach (Bryman, 1988). Various methodologies can be used to explore or extract an individual's viewpoint or set of beliefs on a particular subject. The purpose of this is to assist in making sense of emerging issues or in-depth information, based on the individual's perspective. The objective nature of quantitative approaches differs from qualitative approaches, for example, they emphasise the ability to extrapolate and generalise the information collected (Myer 2000; Lincoln and Guba, 2003). The understanding of paradigm meanings is crucial to better understanding my philosophical position.

The concept of 'paradigm' is described in a research context by Weaver and Olson (2006) as providing insight into how research is guided by describing the processes through which an inquiry is conducted. The way in which a researcher perceives the world is shaped by a paradigm, which is a product of social constructions such as family, religion, experiences, education, community, and society (Flay *et al*., 2009; Sengstock, 2009). It is advised that, as an early career researcher, one must clearly state the paradigm in which the research fits to inform knowledge or identify roles generated by the research process. As outlined in Denzin and Lincoln (2005), I should clearly state the paradigm into which the research fits. Research is conducted in accordance with this paradigmatic approach from the collection of data to the presentation of the results. In this way, it is demonstrated how it differs from another research in the field.

Generally, health research paradigms are either positivist/objectivist (quantitative) or naturalist/interpretivist (qualitative) in nature (Guba and Lincoln, 1994; Weaver and Olson, 2006). It has been argued that within an interpretive research paradigm, the researcher, and the participants co-construct meanings of the issues rather than trying to verify an existing hypothesis objectively (Charmaz, 2006; Mills, Bonner and Francis, 2006). Considering the argument stated above, this study can be positioned within Guba and Lincoln's (1994; 2005) framework. Lincoln and Guba (1994) state that the purpose of conducting a research study is to determine "where the whole is greater than the sum of the parts and where the accumulation of the parts does not entirely capture the whole" (Sengstock, 2009; Guba and Lincoln, 1994; 2005). Therefore, this study aims to achieve its ontological objectives by gathering the perspectives of those who have experienced colposcopy cervical screening (attendees) or those who expect to experience it (non-attendees) as well as those who provide the services (trained providers). There is no better way to understand factors that influence the decision-making process or intention to attend colposcopy cervical screening than by studying the target population (in this case, rural women, and colposcopy trained providers).

Furthermore, a constructivist ontology and a transactional or subjective epistemology are incorporated into this paradigm (Guba and Lincoln, 2005). Therefore, this study was conducted with a constructivist ontological approach and social constructivism and interactionism epistemological approaches. According to a methodological approach, participants construct their reality, and the meaning of the data collected by the researcher is jointly constructed between the researcher and the subject (Guba and Lincoln 1990:26; 2005:196). In this study, the research question focuses on "what influences women's decisions regarding participating in colposcopy cervical screening programmes?" was asked to elicit information in support of the study's objectives. The researcher may discover deep-rooted concerns or ideas about the phenomenon by adopting such a broad approach, which is consistent with qualitative inquiry. In addition, a comprehensive research question reduces the chances of narrowing the research in a way that reduces understanding (Calman, 2006; Dey, 1999; Strauss and Corbin, 1998).

3.4 EXPLORING CONSTRUCTIVISM

3.4.1 Defining Key Concepts

Constructivism is a philosophical perspective holding that individuals construct knowledge and meaning from their experiences (Adams, 2006). It assumes reality is constructed intersubjectively through social interactions and interpretations. Constructivism aligns with what Guba and Lincoln (1994) term a “relativist” ontology (realities are multiple and contextual) and “subjectivist” epistemology (knower and subject create understandings).

3.4.2 The Constructivist Philosophical Perspective

Constructivism contends that realities are constructed by social actors and human minds, not discovered objectively (Schwandt, 1994). Knowledge is actively built by humans through experience and reflection. Constructivism assumes a relativist ontology in which multiple situational realities exist based on individual interpretations. There is no one objective, universal truth waiting to be found. Reality is subjective, contextual, and shaped by cultural factors. Knowledge in constructivism is also seen as socially constructed and contextual (Young and Collin, 2004). Humans generate meaning together through collaborative interactions, dialogue, and consensus-building. Constructivism aligns with an intersubjective, transactional epistemology whereby the researcher and respondent shape findings jointly (Guba and Lincoln, 1989). The research process and product are created through the interactive researcher-participant relationship.

Four key assumptions underlie constructivist philosophy (Guba and Lincoln, 1994):

1. Realities are multiple, subjective, and intellectually constructed by social actors.
2. Knowledge emerges through interaction and is historically, culturally, and contextually situated.
3. The knower and subject create understandings; neither can be separated from the knowledge building process.
4. The aim of inquiry is to understand and reconstruct the constructions that people hold and reach consensus.

Constructivism views inquiry as an interpretive act aimed at generating situated knowledge, not discovering universal laws (Schwandt, 2000). The research goal is idiographic understanding of specific cases, not generalisable explanation. Quality stems from trustworthiness and authenticity criteria, not traditional positivist standards. The following sections detail how these assumptions translate into qualitative research methodology.

3.4.3 Constructivist Approach to Research Design

Consistent with its emphasis on context-dependent, co-created findings, constructivism favours an emergent, evolving design that develops organically (Lincoln and Guba, 1985). Constructivists enter the research with an open mindset and flexible plan that can shift in response to ongoing insights. The initial plan is only a provisional guide subject to refinement throughout inquiry.

The constructivist approach to research design is particularly apt for investigating the experiences and perceptions of healthcare professionals and women regarding the colposcopy method of cervical cancer screening in Nigeria. Constructivism suggests that reality is subjectively constructed through individuals' experiences and interactions within their social and cultural environments (Creswell and Poth, 2018). This philosophy is in harmony with the goal of comprehending the diverse perspectives and meanings that participants attribute to the colposcopy screening process. In the realm of constructivism, qualitative research techniques like in-depth interviews and focus group discussions are utilised to gather rich, context-specific information from healthcare professionals and women (Patton, 2015). These techniques enable participants to express their narratives, experiences, and views in their own words, providing the researcher with a detailed understanding of the subject matter (Merriam and Tisdell, 2016).

The constructivist approach acknowledges that both the researcher and the participants co-construct knowledge through their interaction and interpretation (Lincoln and Guba, 2013). Therefore, the researcher's positionality, biases, and presumptions are recognised and considered throughout the research journey (Bourke, 2014). Such reflexivity is vital for the trustworthiness and validity of the results, as it permits the researcher to critically assess how their own viewpoint may shape the data gathering and analysis (Creswell and Miller, 2000).

Furthermore, the constructivist approach underlines the significance of contextual elements in influencing individuals' experiences and perceptions (Creswell and Poth, 2018). In the setting of colposcopy screening in Nigeria, this approach would facilitate the researcher's examination of the socio-cultural, economic, and healthcare system influences on the attitudes and beliefs of healthcare professionals and women towards the screening method. Adopting a constructivist approach allows the research design to be flexible and emergent, facilitating the exploration of unexpected insights or themes that may surface during data collection (Patton, 2015). This iterative process enhances the understanding of the phenomenon and its complexities, resulting in a more nuanced and contextualised interpretation of the data (Merriam and Tisdell, 2016).

In summary, the constructivist approach is particularly apt for this study as it corresponds with the objective of comprehending the subjective experiences and perceptions of healthcare professionals and women regarding colposcopy cervical cancer screening in Nigeria. By incorporating multiple perspectives, contextual factors, and the joint construction of knowledge, this method can provide rich, contextualised insights that are instrumental in developing strategies to improve screening uptake and delivery within the Nigerian healthcare setting.

3.4.4 Constructivist Approach to Data Collection

Consistent with its subjectivist epistemology, constructivism utilises interactive qualitative methods to gather thick, descriptive data reflective of participants' perspectives (Ponelis, 2015). In-depth interviewing, participant observation, focus groups, and gathering personal documents enable accessing deep insider meanings. Constructivist data collection emphasises: Naturalistic inquiry within real-world contexts, purposive, maximum variation sampling seeking diversity, prolonged engagement over time to build trust, thick, detailed descriptive data that adds texture and nuance, researcher-participant interactivity and dialogue during gathering, co-constructing meaning through collaborative sense-making, researcher reflexivity to examine personal biases, and emergent flexibility to follow leads based on insights uncovered. It is demonstrated in Creswell and Poth's (2018) studies that prolonged engagement and detailed descriptions are crucial to establishing trustworthiness in qualitative research. This approach elicits the descriptive richness needed for the researcher and participants to intersubjectively construct situated understandings grounded in lived realities.

In the constructivist paradigm, data collection for examining healthcare professionals' and women's experiences with colposcopy cervical cancer screening in Nigeria is steered by co-construction, context sensitivity, and adaptability. The goal is to collect detailed, contextual data that reflects the varied realities and personal meanings that participants attribute to the phenomenon (Creswell and Poth, 2018). In-depth, individual interviews are a primary method for data collection, enabling participants to convey their narratives and viewpoints in their own language (Patton, 2015). Semi-structured interview guides offer a structured yet adaptable outline for discussions, allowing for the exploration of new themes and insights (Merriam and Tisdell, 2016). This method is in line with the constructivist belief that knowledge is created through interactive dialogue between the researcher and participants (Lincoln and Guba, 2013). Focus groups are another technique that can be used to gather a variety of perspectives and aid in the collective construction of meaning via group dialogue (Creswell and Poth, 2018). The interactive nature of focus groups can uncover common experiences, discrepancies, or agreements among participants, offering a layered understanding of the phenomenon (Patton, 2015).

During the data collection process, the researcher will maintain reflexivity, recognizing their own positionality, biases, and assumptions, and understanding how these could affect their interactions with participants and the interpretation of data (Bourke, 2014). Keeping field notes and a reflexive journal will aid in this essential self-reflection, thus increasing the trustworthiness and credibility of the research findings (Creswell and Miller, 2000). The constructivist approach underscores the significance of contextual elements in shaping individuals' experiences and perceptions (Creswell and Poth, 2018). Consequently, data collection will include the accumulation of information about the social, cultural, economic, and healthcare system contexts that the participants live. This may involve methods such as observations, document analysis, or participatory techniques that involve participants in the co-creation of contextual understanding (Patton, 2015). Furthermore, the data collection method will be iterative and adaptable, permitting changes and refinements in response to new insights or unforeseen discoveries (Merriam and Tisdell, 2016). This iterative method is in line with the constructivist belief that knowledge is perpetually co-created and honed through interaction and experience (Lincoln and Guba, 2013). Adhering to the tenets of co-construction, context awareness, and adaptability, the constructivist methodology in data collection can provide in-depth, detailed, and context-aware insights into the experiences and viewpoints of healthcare professionals and women regarding colposcopy cervical cancer screening in Nigeria. This method promotes a more profound comprehension of the subject and its intricacies, thereby guiding the development of strategies to enhance screening participation and implementation within the Nigerian healthcare setting.

3.4.5 Constructivist Approach to Analysis

Consistent with its epistemology, constructivism eschews the idea of an objective data analysis process detached from human interpretation. Instead, constructivist analysis engages the researcher and participants in active collaborative meaning making to interpret the data through dialogue and consensus (Rodwell, 1998).

Key aspects of constructivist analysis include: Thematic analysis to identify recurring themes, patterns, and meanings, collaborative critical analysis with participants to member check, seeking understanding, not verification or proof, comparing and contrasting divergent constructions, crystallization by using multiple data sources to generate insights, researcher reflexivity throughout interpretation, generating thick descriptions of participants' life worlds, and co-constructing findings that integrate different perspectives (Creswell and Poth, 2018).

Rather than approaching analysis as a linear, technical process, constructivism views it as organic human sense-making that crystallises shared understandings from subjective perspectives. From a constructivist standpoint, data analysis is an inductive and iterative process that uncovers patterns, categories, and themes from the rich, contextual data gathered (Creswell and Poth, 2018). Researchers engage in a continuous cycle of collecting data, coding, and interpreting, building meaning collaboratively with participants through interaction and interpretation (Lincoln and Guba, 2013). Methods like thematic analysis or constant comparative analysis are utilised to systematically analyse and interpret the data (Braun and Clarke, 2006; Merriam and Tisdell, 2016). Researchers stay reflexive during the analysis, critically reflecting on how their own positionality and assumptions might shape their interpretation of the data (Bourke, 2014). The goal of the analysis is to encapsulate the diverse perspectives and subjective meanings that participants attribute to their colposcopy screening experiences, while also considering the wider social, cultural, and healthcare contexts that influence these views (Patton, 2015).

3.4.6 Constructivist Approach to Quality

Consistent with its philosophical assumptions, constructivism employs unique quality standards that differ from conventional positivist criteria focused on validity, generalisability, reliability, and objectivity (Lincoln & Guba, 1985). Constructivism's relativist ontology rejects the idea of an objective, measurable reality. Constructivist quality emphasises: Credibility - findings represent participants' constructions, authenticity - enlarges personal perspectives, transferability - provides contextual applicability, dependability - shows consistency in process, confirmability - grounds findings in data, reflexivity - critically examines subjectivity, trustworthiness - establishes confidence in findings. These standards judge the worth of constructivist research based on its coherence, insightfulness, and utility for deepening understanding of human phenomena.

3.4.7 Constructivist Approach to Knowledge Building

Rather than aiming for generalisable or universal knowledge, constructivism seeks idiographic, contextual knowledge that provides nuanced understandings of human experiences (Rodwell, 1998). The constructivist “knowledge claim” results from weaving together subjective perspectives to generate insight. The knowledge claim crystallises a shared understanding useful for illuminating practice and situations.

Knowledge accrues through comparing different constructions across cases to find commonalities. The degree of consensus around a particular construction determines its credibility (Guba and Lincoln, 1989). Knowledge stems from well-informed constructions built on diverse insights. Based on constructivist point of view, knowledge construction on this research topic is an interactive and iterative co-construction process between the researcher and participants (Lincoln and Guba, 2013). The researcher's role is not to simply discover knowledge but to facilitate the collective creation of new insights through collaborative dialogue and interpretation. Methods of data collection such as in-depth interviews and focus groups enable the co-creation of knowledge, with participants sharing their narratives, viewpoints, and experiences for the researcher to interpret and integrate (Creswell and Poth, 2018). Throughout this process, the researcher remains reflexive, recognizing their own positionality and its impact on the construction of knowledge (Bourke, 2014). Data analysis and interpretation are also viewed as co-constructive, involving the researcher in a repetitive cycle of coding, categorising, and theme identification that reflects the diverse realities and contextual elements that shape participants' perceptions and experiences (Merriam and Tisdell, 2016). The constructivist approach acknowledges that knowledge is dynamic, evolving through the interplay among the researcher, participants, and the socio-cultural environments they inhabit (Lincoln and Guba, 2013). Hence, the knowledge produced is contextual, mirroring the realities and experiences of healthcare professionals and women within the Nigerian healthcare system. The goal of the constructivist approach to knowledge construction is to generate detailed, nuanced, and contextualised insights that contribute to enhancing the accessibility, acceptability, and use of colposcopy cervical cancer screening services in Nigeria (Patton, 2015).

3.4.8 Integration of Constructivist and Phenomenological Principles

3.4.8.1 Intersubjectivity

Intersubjectivity refers to shared understanding and meaning developed through interactive processes between two or more people (Walsh *et al.,* 2015). Constructivism assumes knowledge emerges through subjective interpretations mutually built during collaborative researcher-participant dialogue. In other words, it assumes that human beings develop shared meanings and mental models through social processes (Walsh *et al.,* 2015). Intersubjectivity recognises that the researcher and participants influence each other’s constructions. Research grounded in intersubjectivity emphasises dialogue and joint analysis between the researcher and study participants to construct findings. Phenomenology also values intersubjective reasoning, with the researcher engaging participants to jointly make sense of phenomena under study. The researcher's interpretations mesh with the meanings articulated by participants. Meaning is co-created, not discovered. Researcher and participant interpretations mesh in the production of findings. Intersubjectivity enables accessing multiple vantage points to develop multi-layered representations. Intersubjectivity recognises that the investigator and the object of study influence one another mutually during the research process. Findings result from shared meanings.

3.4.8.2 Reflexivity

Reflexivity is the process of critical self-reflection about one's own biases, preferences, and preconceptions. Reflexivity involves critical self-reflection about how a researcher's social background, assumptions, positioning, and behaviour impact the research process (Berger, 2015). Reflexivity recognises that the researcher is part of the social world being studied and cannot be entirely detached and neutral. Being reflexive entails examining personal biases and being transparent about one’s integral role in the research process. Reflexivity illuminate’s preconceptions that could cloud judgment. Both constructivism and phenomenology demand rigorous reflexivity to uphold their intersubjective, co-constructed epistemology (Darawsheh, 2014). Reflexivity enables the researcher to approach phenomena with fresh eyes rather than impose existing perceptions. It enhances credibility by accounting for biases. Reflexivity upholds phenomenology’s emphasis on bracketing prior knowledge to avoid tainting descriptions. Constructivist phenomenological research demands reflexivity to illuminate how a researcher's values, interests, and perceptions influence inquiry. Engaging in reflexivity upholds the intersubjective nature of knowledge construction. Through reflexivity, researchers become more self-aware and transparent about their role in shaping research interpretations. Reflexivity enhances credibility by accounting for biases that may cloud judgment (Denzin and Lincoln, 2005).

3.4.8.3 Emergent Flexible Design

Consistent with intersubjective knowledge building, constructivist phenomenology utilises an emergent, evolving research design that develops organically as understanding grows (Wahyuni, 2012). The interactive process of discovery cannot be tightly preconfigured. The research questions, sampling strategies, data forms, and analytical directions shift in response to ongoing findings. Constructivism assumes knowledge is context-dependent, so the study structure must remain flexible to capture nuances. Similarly, phenomenology aims to enter research with an open attitude to allow meanings to emerge. An emergent design aligned with participants' realities best illuminates lived experiences.

3.4.9 Thick Descriptive Data

Constructivism and phenomenology both rely on gathering thick, detailed descriptions of people's life-worlds to identify themes and essences. In-depth interviewing, participant observation, personal narratives, and documents containing conceptual descriptions all provide rich data (Ponelis, 2015). The researcher engages dialogically with participants to encourage comprehensive accounts of their experiences, perceptions, assumptions, feelings, and interpretations. Thick description captures subtleties and conveys authentic insights. Constructivism uses such data to find commonalities across lived realities. Phenomenology utilises thick descriptive accounts to illuminate the true essence of phenomena through experiential exemplars. Each values deep immersion in subjective perspectives.

3.4.10 Co-Construction of Meaning

Central to constructivism is the assumption that knowledge and meaning are interactively co-constructed between the researcher and participants through cooperative dialogue, reflection, and interpretation. Diverse experiences expand understanding (Canh and Barnard, 2015). Co-construction of meaning in research refers to the collaborative process in which researchers and participants actively engage in dialogue to create shared understanding. Instead of knowledge being passively transmitted from researcher to participant, it is jointly developed through interaction, negotiation, and reflection. This approach is commonly used in qualitative research, and it acknowledges that knowledge is not fixed but rather shaped by context, experiences, and perspectives. Researchers using this method aim to ensure that participants' voices are recognised and incorporated into the interpretation of findings. Researcher and participant offer complementary pieces that build comprehensive meaning. Likewise, phenomenology engages participants to jointly make sense of phenomena. The researcher thinks with participants to blend perspectives (Rodgers, 2005). Interactive discussion and consensus-building shape findings that integrate different viewpoints. Subjective meanings are mutually built, not discovered. The goal is idiographic knowledge, not generalisable truth.

3.4.11 Constructivist Phenomenological Methods

Constructivist phenomenological methods are well-suited for exploring the lived experiences and perceptions related to colposcopy cervical cancer screening. This approach acknowledges that individual experiences are influenced by their distinct contexts, backgrounds, and interactions with their surroundings (Creswell and Poth, 2018). Data collection would entail in-depth, open-ended interviews, enabling participants to share their colposcopy screening experiences in detail (Patton, 2015). The researcher would participate in an interactive dialogue, co-creating meaning with participants through probing questions and follow-up discussions (Moerer-Urdahl and Creswell, 2004). Constructivist phenomenology utilises thematic analysis to make sense of qualitative data. The analysis would be an inductive, iterative process to identify common themes and patterns in participants' narratives (Merriam and Tisdell, 2016). The analysis aims to interpret how broader social, cultural, and healthcare system factors influence these experiences (Creswell and Poth, 2018). The constructivist phenomenological approach throughout the study emphasises reflexivity, with the researcher continuously reflecting on their own positionality, biases, and their impact on the co-construction of knowledge with participants (Bourke, 2014). Employing constructivist phenomenological methods, the research aims to uncover rich, contextual insights into the varied experiences and perceptions of healthcare professionals and women regarding colposcopy screening in Nigeria. These detailed understandings could guide strategies to enhance the accessibility, acceptability, and use of screening within Nigeria's specific socio-cultural and healthcare settings (Patton, 2015).

The researcher and participants engage in close collaborative readings of interview transcripts, observational notes, and documents to identify salient themes, recurring ideas, and shared meanings. The goal is to build thick, contextualised descriptions that capture the essence of the phenomenon as mutually understood by researcher and participants. Knowledge claims derive from subjective perspectives formed through interactive consensus-building between the researcher and participants. Transferability is more relevant than external validity or generalisability. Quality and rigor stem from criteria like credibility, authenticity, transparency, trustworthiness, and catalytic validity rather than traditional positivist standards (Guba and Lincoln, 1989). Ultimately, the research product is a joint reconstruction that crystallises the complex, multi-layered meanings illuminated through the inquiry process. Constructivist phenomenology produces situated, contextual accounts of human experience rather than abstract decontextualised knowledge claims.

In summary, constructivist phenomenology provides a coherent subjectivist framework for qualitative research aimed at eliciting depth of understanding about lived experiences. It offers a methodology well-suited to capturing nuanced, contextualised knowledge about how humans construct reality and meaning. This interpretive approach can generate insights traditional positivist research cannot access. Constructivist phenomenology expands understanding of subjective dimensions of life and culture invisible to objectivist paradigms. This section has outlined key assumptions within constructivism and phenomenology philosophies. It has illustrated how their ontological and epistemological orientations synergise to support an intersubjective methodology that describes lived experiences and co-constructs knowledge through researcher-participant interaction. Constructivist phenomenology operationalizes principles like reflexivity, emergent flexible design, thick description, and meaning co-creation that are foundational to rigorous qualitative research. It provides a framework well-aligned with the goals of interpretive inquiry. Constructivist phenomenology enables insightful illumination of subjective human phenomena in a way that honours participants' realities, and this is in keeping with the goals of this study.

3.5 STUDY SETTINGS.

The researcher's background as a native of Rivers State, where the study was conducted, provides valuable contextual understanding and familiarity with the region. Rivers State, located in the Niger Delta region of southern Nigeria, is characterised by its numerous rivers that define its territorial boundaries. Established in 1967 from the former Eastern Region, the state encompasses a landmass of 11,077 km2 (4,277 sq.

mi). According to the National Population Commission (2016), Rivers State has a projected population of approximately 7,303,900, with an annual growth rate of 3.5%. The state capital, Port Harcourt, is one of 23 local government areas within the state. Notably, about 48.6% of the population is female, a demographic that faces various health challenges and diseases, potentially increasing their risk of cervical cancer. Given the focus of this study on colposcopy cervical cancer screening in rural areas of Rivers State, the relevant population size would primarily consist of two groups: healthcare providers involved in colposcopy services and women who are potential or actual service users of these screening programmes in rural areas. While exact figures for these specific populations are not provided, we can make some inferences based on the available data. Considering that nearly half of the state's population is female (approximately 3.5 million), a significant portion of these women would be of an age appropriate for cervical cancer screening. However, the study's focus on rural areas would narrow this population further, as it excludes urban centres like Port Harcourt.

For healthcare providers, the population size would be considerably smaller, limited to those specifically trained and engaged in colposcopy cervical cancer screening in rural settings. This group might include gynaecologists, general practitioners, nurses, and other healthcare workers involved in women's health services in rural clinics and hospitals across the state. The purpose of this study, therefore, is to delve deeper into the experiences and perceptions of both these healthcare providers and the women they serve in rural Rivers State. By focusing on these populations, the research aims to provide comprehensive insights into the challenges, successes, and overall landscape of colposcopy cervical cancer screening in these underserved areas. This approach will contribute valuable information to enhance understanding and potentially improve cervical cancer screening services in rural Nigeria.

3.6 STUDY DESIGN

This qualitative research employs a sequential two-phase exploratory approach to investigate the experiences and perceptions of healthcare professionals and women regarding colposcopy for cervical cancer screening in Nigeria. The rationale for adopting a sequential, two-phase study design for this research is to first allows findings from patient experiences (Phase 1) to inform and refine questions for healthcare professionals (Phase 2). This approach helps to understand the patient’s perspectives since they are the primary focus regarding the disease and inform the formulation of questionnaire to explore healthcare professional’s perspectives. Therefore, enabling the identification of gaps between patient needs and healthcare delivery that might not emerge in a concurrent design or single-phase study. The study design comprises in-depth interviews with women (service users) and focus group discussions with healthcare professionals (service providers). This method provided initial insights from the service users, shaping the subsequent discussions with providers. In Phase 1, I focused on service users to centre the study around their experiences and needs. Firstly, I collected data, transcribed and analysed the data which informed the formulation of questionnaire for phase 2 data collection. Adopting this user-centric approach guaranteed that the most urgent concerns from the recipients' viewpoint were addressed before involving providers. This strategy enabled us to gather unfiltered insights from users, especially since they are at risk of cervical cancer and are the primary focus of this study, which then guided more pertinent and focused conversations with providers in Phase 2. Phase 1 identified critical themes and concerns from the users' perspectives pinpointing areas needing deeper investigation with providers. These findings allowed for the development of more focused and pertinent questions for the focus groups, ensuring that the most significant issues were addressed. The sequential nature of this design deepened the study's overall depth and breadth, providing more understanding of the perspectives of both users and providers regarding the colposcopy technique for cervical cancer screening. This sequential study design implementation occurred over a period six-month from May to November 2023, with distinct phases of data collection, transcription, and analysis as stated below.

Phase One (Patient Participants):

- May 2023: Recruitment of patient participants and preparation of interview materials
- June 2023: Conducted semi-structured interviews with patients (3 weeks)
- Late June - Mid-July 2023: Concurrent transcription of patient interviews as they were completed
- Mid-July - Early August 2023: Preliminary analysis of patient data using thematic analysis approach
- Mid-August 2023: Finalisation of phase one findings and identification of key themes to explore with healthcare professionals

Phase Two (Healthcare Professional Participants):

- Late August 2023: Refinement of interview guides based on phase one findings and recruitment of healthcare professional participants
- September 2023: Conducted focus group discussion with healthcare professionals (3 weeks)

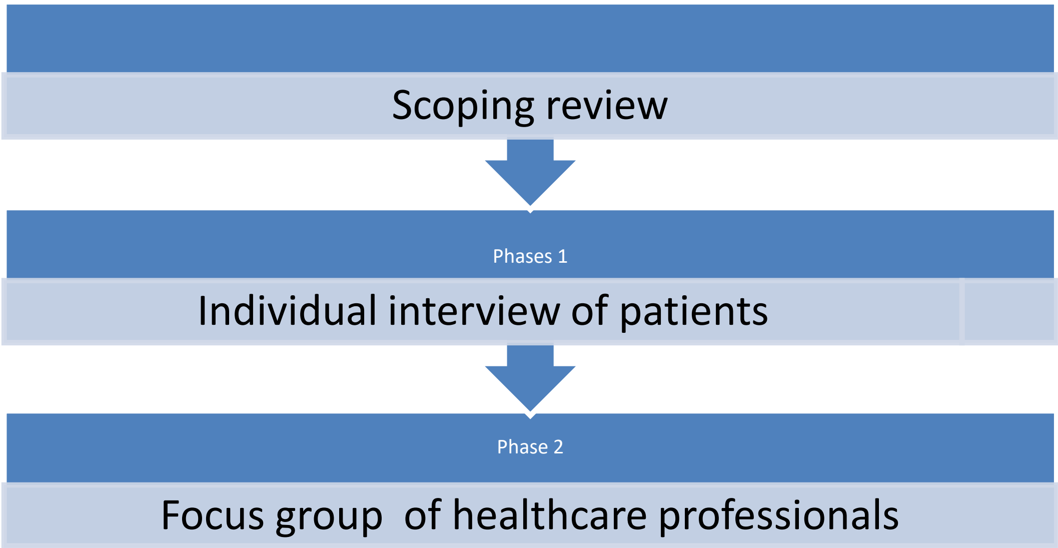
- Late September - Early October 2023: Transcription of healthcare professional interviews
- Mid-October - Early November 2023: Analysis of healthcare professional data and integration with patient data
- November 2023: Final comprehensive analysis combining insights from both phases

Between phases (mid-August), I used a two-week transition period to refine the interview approach for healthcare professionals based on patient experiences. The theoretical underpinnings of this research design merit critical examination. The choice of a qualitative approach suggests an underlying assumption that the subject matter is best understood through rich, descriptive data to answer the research questions rather than quantitative measurements. This assumption may be valid given the complex, personal nature of healthcare experiences, but it also limits the generalisability of findings. The two-phase design implies a belief that the perspectives of both women and healthcare professionals are essential to understanding the issue comprehensively. This approach acknowledges the multifaceted nature of healthcare experiences and the potential for discrepancies between provider and patient viewpoints. However, it also raises questions about how these potentially divergent perspectives will be reconciled in the analysis. The use of in-depth interviews for women and focus groups for healthcare professionals reveals assumptions about the nature of knowledge construction in these two groups. Individual interviews suggest that women's experiences are highly personal and may vary significantly, warranting one-on-one exploration. Conversely, the choice of focus groups for healthcare professionals implies an expectation of shared professional experiences and the value of group dynamics in eliciting insights. This methodological choice, while potentially fruitful, may inadvertently reinforce power dynamics by treating healthcare professionals as a collective and women as individuals. It could be argued that individual interviews with healthcare professionals and focus groups with women might yield equally valuable, if different, insights. The exploratory nature of the study suggests an inductive approach to knowledge generation, implying that the researchers expect to derive understanding from the data rather than testing pre-existing hypotheses. This approach aligns with the complexity of the subject matter but may also risk overlooking important theoretical frameworks that could guide the investigation. The focus on experiences and perceptions indicates a phenomenological orientation, prioritizing subjective lived experiences over objective measures. This orientation is well-suited to capturing the nuances of healthcare interactions but may underemphasise systemic or structural factors influencing cervical cancer screening practices. The study's focus on colposcopy as a specific screening method suggests an assumption about its importance or prevalence in the Nigerian context. This focus could provide valuable insights into a particular technique but might also narrow the scope of the investigation, potentially missing broader issues related to cervical cancer screening.

The decision to conduct the study in Nigeria implies an acknowledgment of the importance of cultural and geographical context in healthcare experiences. However, it also raises questions about the transferability of findings to other settings and the potential for the research to be influenced by cultural biases or assumptions. The absence of a quantitative component in the research design suggests a prioritization of depth over breadth in understanding the issue. While this approach can yield rich insights, it may limit the ability to make broader generalisations about the prevalence or distribution of certain experiences or perceptions. In summary, while the chosen research design offers potential for deep, contextual understanding of colposcopy experiences in Nigeria, it also embodies certain theoretical assumptions and limitations. A critical awareness of these underpinnings is crucial for interpreting the study's findings and considering their broader implications for cervical cancer screening practices and policies.

This research was conducted in two (2) phases, as illustrated below:

Figure 3.2: Phases of the study



3.6.1 Phase 1: Exploration of service user’s perceptions and barriers

Individual In-depth Interview

One-to-one semi-structured interviews were utilised in this study to gather comprehensive information about the participants' experiences. The same initial question was posed in both individual interviews and focus group discussions. This method fostered rapport with participants, yielded data on their health perspectives and beliefs, and dispelled any misconceptions. The semi-structured nature of the interviews provided the chance to listen carefully, pause, and delve deeper into unclear points when necessary (Newton, 2010). The constructivism methodology's flexibility, coupled with prior understanding of the studied phenomena, proved beneficial during the interviews, facilitating a deeper exploration of participants' views (Fielding, 1994). The participants' readiness to share their perspectives enabled the collection of rich data, even within the structured interview format (Charmaz, 2006; Guba and Lincoln, 1981). Efforts were made to avoid leading questions that could bias participants' responses with preconceived notions. This was ensured by allowing participants to express themselves freely (Glasser and Strauss, 1967; 1996; Newton, 2010). A key precaution during the interviews was to avoid influencing responses with the nature of the questions. For instance, direct questions such as “did the screening make you feel embarrassed?” were avoided, as they could lead to superficial answers without deeper insight. To promote openness and comfort, interviews typically began with general questions about health and service access, progressing to specific inquiries about cervical cancer and screening programmes, with experiential questions like “why have you not gone for colposcopy screening” or “could you describe your experience on colposcopy screening you attended” introduced later.

In this initial phase of this research, semi-structured, individual in-depth interviews were employed to elicit rich, qualitative data concerning the experiential and perceptual dimensions related to the utilisation of colposcopy for cervical cancer screening among women of reproductive age. The adoption of this qualitative methodology was strategically chosen to garner rich, detailed accounts of the lived experiences and perceptions of these women living in rural settings regarding their engagement with colposcopy screening services. Conducted either face-to-face, with the support of a female chaperone for comfort and propriety, or via telephone to accommodate those unable to attend in person, these interviews encompassed the involvement of 41 women fitting the specified demographic criteria (for example, age, occupation, religion, ethnicity). The participant pool was dual-faceted, consisting of women who had previously engaged with colposcopy screening, (recruited through hospital records and were contacted through postal and electronic communications), and those who had not, (recruited for participation through channels managed by local hospital and community leaders, exploiting familiar communication networks such as those within women's and faith-based organisations) living in rural areas within Rivers State, Nigeria, with access to the services. Those who responded affirmatively to the outreach were carefully screened for eligibility and gave informed consent before their inclusion in the study. The participant selection was meticulously carried out to capture a diverse, purposive sample which is a non-probability sampling technique where the researcher intentionally select participant based on certain criteria relevant to the research question (Wong, 2008; Mishra, 2016; Nyumba *et al*., 2018), specifically targeting individuals whose experiences and viewpoints could significantly contribute to the depth and breadth of findings relevant to the phenomenon under investigation. Data collation from this initial phase served a dual purpose: providing a foundational understanding of user-centric challenges in the context of colposcopy screening and informing the formation of strategic questions for subsequent phase targeting healthcare professionals. By weaving the narratives and experiences of service users into the study's framework, the research gains invaluable insights, thus enriching the subsequent investigatory stages.

The rationale underpinning the selection of in-depth interviews was based on its capability to facilitate an immersive, empathetic, and reflexive engagement with participants, allowing for an unhurried and mindful elicitations of their narratives (Longhurst, 2003; Whiting, 2008). Moreover, this method provides the flexibility needed to tailor the inquiry to the individual, ensuring a responsive and respectful alignment with the participant's communicative and situational context (Bolderston, 2012; Turner, 2010). Consequently, in-depth interviews emerged as an indispensable instrument for collecting evidence-based, nuanced qualitative data. These interviews provide a conducive environment where participants can share their subjective experiences, free from the constraints of structured questioning, which may prohibit the natural flow of discourse (Morse and Field, 1995; Rubin and Rubin, 2005). Such a strategy is particularly potent when exploring sensitive health topics like colposcopy screening, as it can elicit information about personal and cultural beliefs, psychological impacts, and socioeconomic factors that might influence health behaviours (DiCicco-Bloom and Crabtree, 2006; Pope and Mays, 1995). Methodologically, the use of in-depth interviews aligns with the constructivist paradigm, wherein knowledge is understood as being co-constructed between the researcher and the participant. It upholds the premise that reality is multi-layered and subjective, an ideal approach for unpacking the intricacies of colposcopy cervical cancer screening utilisation within the discrete context of rural Nigerian communities. Furthermore, the decision to employ in-depth interviews as the research modality is supported by extant literature, which emphasises the value of qualitative methods in uncovering the 'why' behind participant behaviours and decisions in health care (Green and Thorogood, 2009; Silverman, 2013). This reflects the study's objective to not only describe the phenomena but also to interpret it, thereby providing deeper insights into the barriers and facilitators impacting health service utilisation.

The development of the interview questions (see Appendix 2) underwent a rigorous and meticulous process to ensure both content and construct validity. Creswell and Miller (2000) explain that content validity refers to how well research instruments measure the concepts intended, while construct validity refers to the alignment between theoretical constructs and measurements. In qualitative research, the concepts of content validity and construct validity are adapted to suit the nature of qualitative inquiry, including interview questions. While these terms are more commonly associated with quantitative research, they can be relevant in ensuring the credibility and rigor of qualitative interview questions. Initially, an extensive literature review was performed to pinpoint key themes, concepts, and influential factors in women's experiences and perceptions of colposcopy screening (Creswell and Poth, 2018). Subsequently, a panel of experts, comprising researchers in cervical cancer screening, qualitative research methodologists, and healthcare professionals knowledgeable about the Nigerian setting, reviewed the initial interview guide. Their assessment focused on the relevance, clarity, and comprehensiveness of the questions to guarantee content validity (Haynes *et al*., 1995). Following this, the interview guide underwent a pilot test with a select group of women who had experienced or were eligible for colposcopy screening. The pilot aimed to test the questions' effectiveness in eliciting detailed, pertinent information and to pinpoint any issues or required adjustments. The participants also offered feedback on the questions' clarity and cultural suitability (van Teijlingen and Hundley, 2001). After incorporating the insights from the expert review and pilot testing, the interview guide was refined to improve its construct validity, ensuring the questions precisely reflected the targeted concepts and experiences associated with colposcopy cervical cancer screening (Creswell and Poth, 2018). The use of in-depth interviews in this study phase aligns with the constructivist paradigm, promoting the joint creation of knowledge and a detailed comprehension of women's actual experiences with colposcopy cervical cancer screening in rural Nigeria. This thorough approach to question development and validation strengthens the findings' credibility and reliability, aiding in a more profound investigation of the research aims. The data derived from these interviews are thematically analysed and subsequently structured to inform the research's progression, particularly the creation of informed questions for the next qualitative phase directed at health care professionals. This design follows a logical sequence wherein understanding the patient perspective is crucial before exploring the viewpoints of the providers.

3.6.2 Phase 2: Exploration of healthcare professional's perceptions and barriers Focus group Discussion.

Recruiting for focus groups can be challenging due to issues related to contact and trust between researchers and potential participants. A focus group is a data collection method that involves moderated discussions reflecting the participants' perceptions and experiences of a subject under investigation by a researcher (Guest, Namey and Mitchell, 2022; Morgan, 2019). Focus groups can uncover information that may be difficult to obtain through individual interviews, as the group's synergy and dynamics often reveal unspoken norms and assumptions (Nyumba *et al.,* 2018). By employing an informative approach, focus groups transcend the limits of individual memory; when one person shares a viewpoint, it can trigger the recollections of others with similar experiences, thus encouraging them to share their perspectives on the discussed topic (Hennink and Leavy, 2020). Focus groups gather diverse information from various perspectives, drawing from individuals with shared interests or backgrounds (Krueger and Casey, 2020; Stewart and Shamdasani, 2022). The group dynamic facilitates the collection of in-depth and rich information during the discussion (Flynn, Albrecht and Scott, 2018). Liamputtong (2019) compared focus groups to a "magnifying glass," fostering social interactions like everyday life but with enhanced clarity and depth of understanding.

In the study's final phase, focus group discussions (FGDs) with healthcare professionals were held to gather detailed insights into their experiences, perceptions, and perceived obstacles to the adoption of colposcopy for cervical cancer screening in rural regions. The selection of FGDs is based on a solid evidence foundation, consistent with the constructivist paradigm and the interpretive theoretical perspective that informs this research. FGDs are acknowledged as an effective qualitative technique for delving into the collective experiences, beliefs, and viewpoints of a specific group or community (Patton, 2015; Morgan, 1997). The participatory nature of FGDs promotes the joint creation of knowledge via active group dialogue, allowing participants to expand on and question one another's opinions and to interpret their common experiences together (Creswell and Poth, 2018). The collaborative and dialogic aspects of FGDs correspond with the constructivist paradigm, which views knowledge as being constructed socially through interactive conversation and the sharing of varied perspectives (Lincoln and Guba, 2013). This approach also fits with the interpretive theoretical perspective, which recognises that the experiences and perceptions of healthcare professionals are influenced by their distinct socio-cultural and healthcare system environments (Patton, 2015). Two rounds of FGDs were carried out, each involving nine healthcare professionals (both doctors and nurses) who were trained and active in providing colposcopy screening services at public general hospitals in Rivers State, Nigeria. The deliberate sampling strategy ensured the participation of individuals with relevant knowledge and viewpoints crucial for achieving the research goals (Palinkas *et al*., 2015).

The development of the focus group questions (see Appendix 11) underwent a meticulous process to ensure both content and construct validity. Initially, an extensive literature review and thematic analysis were performed to identify the main themes, concepts, and potential factors that affect healthcare professionals' experiences and perceptions of colposcopy screening as informed by Creswell and Poth (2018). Information from the initial phase was incorporated. Subsequently, a panel of experts, comprising researchers in cervical cancer screening, qualitative research methodologists, and healthcare professionals knowledgeable about the Nigerian setting, reviewed the preliminary focus group guide. This review evaluated the relevance, clarity, and thoroughness of the questions to guarantee content validity, according to Haynes *et al*. (1995). Following this, a pilot test with a select group of healthcare professionals in cervical cancer screening assessed the guide's ability to provoke detailed, pertinent discussions. It also pinpointed any issues or required adjustments. Feedback on the questions' clarity and suitability was also solicited (van Teijlingen and Hundley, 2001). The guide was then updated and refined based on expert feedback and pilot results, bolstering its construct validity to ensure the questions precisely reflect the targeted concepts and experiences associated with colposcopy cervical cancer screening (Creswell and Poth, 2018).

The use of focus group discussions in this study phase was in line with the constructivist paradigm. This promoted the collaborative creation of knowledge and an intricate comprehension of healthcare professionals' collective experiences and views on colposcopy cervical cancer screening in rural Nigeria. The thorough approach to question formulation and validation testing strengthens the findings' credibility and reliability, aiding in an in-depth investigation of the research aims.

3.6.3 Validity

The rationale to combine focus group and in-depth interview is to obtain in depth understanding of subject's beliefs and perceptions. Most researchers that use focus group combine it with other methods for validity (Nyumba *et al.,* 2018). The in-depth individual interviews are the most frequently paired with focus group due to its qualitative nature and perceived as being straight forward. Triangulation for validity was adopted for this study (Radhakrishnan, 2014). To ensure the content and construct validity of the data collection tools in this study (in-depth interviews and focus groups), a rigorous, evidence-based approach was adopted. Content validity pertains to the degree to which the questions accurately reflect the intended concepts and domains of interest (Haynes *et al*., 1995), while construct validity confirms that the questions assess the intended theoretical constructs (Creswell and Creswell, 2018). Content validity for both the in-depth interview and focus group guides was secured through an extensive literature review and expert panel assessment. Essential themes, concepts, and factors pertinent to the experiences and perceptions of colposcopy screening were extracted from the literature to guide the initial question development (Creswell and Poth, 2018). The draft guides were then evaluated by an expert panel, including cervical cancer screening researchers, qualitative methodologists, and healthcare professionals. Their insights on the relevance, clarity, and thoroughness of the questions contributed to the enhancement of content validity (Haynes *et al*., 1995). Construct validity was further reinforced by pilot testing the data collection tools. The guides were tested with a select group of women and healthcare professionals. This step assessed whether the questions prompted detailed, pertinent data and accurately reflected the constructs related to colposcopy screening experiences and perceptions (van Teijlingen and Hundley, 2001). Revisions made based on feedback from the pilot participants improved the clarity and suitability of the questions, thereby augmenting construct validity. Furthermore, employing established qualitative methods like in-depth interviews and focus groups, in line with the constructivist paradigm and interpretive theoretical perspective of this research, enhanced the construct validity of the data gathering process (Creswell and Poth, 2018; Patton, 2015). Through a meticulous process of developing questions, conducting expert reviews, and performing pilot testing, the content and construct validity of the data collection tools were optimized. This ensured the capture of genuine and significant data pertinent to the research goals.

3.6.4 Sample method

The study utilised a sampling method to select its participants. Sampling is the process by which a researcher selects a small group to represent the whole population (Creswell and Poth, 2016; Gentles *et al*., 2015). This method was employed to collect data from healthcare professionals and women eligible for colposcopy or at risk of cervical, aiming to explore and perceptions and experiences regarding colposcopy method of cervical cancer screening utilisation. Since this approach aims to understand a particular phenomenon from the perspective of those that provide the service and those that utilising the service, it is appropriate for selecting participants for a descriptive phenomenological study (Speziale, Streubert and Carpenter, 2011). The study employed purposive sampling to enlist participants who could contribute valuable insights pertinent to the research goals. Purposive sampling, a non-probability method common in qualitative research, deliberately chooses individuals or groups whose experiences, traits, or knowledge are significant to the subject being studied (Patton, 2015; Palinkas *et al.,* 2015). The purposive sample comprised healthcare professionals trained in colposcopy and actively engaged in providing screening services in Nigeria's rural regions. Their direct experiences and viewpoints were vital to grasping the challenges, enablers, and contextual elements affecting the provision and use of colposcopy screening services in these locales. The sample also encompassed women who had received colposcopy screening and those who had not yet been eligible and lived in rural areas with access to these services. Documenting the varied experiences and attitudes of both groups offered a thorough perspective on the obstacles, beliefs, and socio-cultural dynamics influencing screening acceptance (Creswell and Poth, 2018). Additionally, the sample purposefully included women with HIV, acknowledging that this demographic might encounter distinct hurdles and considerations in cervical cancer screening and subsequent care (Rahm *et al.,* 2015). Through purposive sampling, the study attracted cases rich in information, allowing for a detailed examination of the research inquiries and aims (Patton, 2015). By selectively recruiting participants with varied experiences and insights, this method enabled a detailed comprehension of the intricacies associated with colposcopy cervical cancer screening in rural Nigeria, enhancing the findings' credibility and reliability.

3.6.5 Recruitment strategy.

Prior to the recruitment of the participants, a campaign to raise public awareness about cervical cancer among the local women was performed. Posters and pamphlets were distributed to women in public places at primary health centres, general hospitals, shopping centres/markets, religious centres, and transport centres. The participants for phase 2 of this study were recruited from trained healthcare professionals that are providing colposcopy cervical cancer screening services, while that of phase 1 from women of reproductive age (service users) living in the rural communities in Rivers State, Nigeria, where these services are provided and meets the eligibility criteria for colposcopy cervical cancer screening. The women participants were recruited by sending both electronic (text massages, telephone calls and social media) and hard-copies (postal) messages through the community and religious leaders to hospitals, women groups, and religious group within the communities where colposcopy screening services are provided. The information contains detailed contact of the researcher, study aims and objectives, criteria, and benefits of the research. For the healthcare professionals, participants were recruited through obtaining access to the list of trained health care professionals made available by the NGO sponsoring the training programme in the state and a WhatsApp group of these trained healthcare professionals. Interested participants were sent consent form to obtain consent and screened for eligibility and further provided with details of the interview/discussion time and location information (Veal, 2018; Jacobsen, 2020). Participation was voluntary, and participants were properly informed that they can quit at any time without providing any reason.

3.6.6 Sample size

The study employed a purposive sampling strategy to recruit a total of 59 participants ensuring data saturation, strategically selected to provide comprehensive insights into the dynamics of colposcopy cervical cancer screening in Rivers State, Southern Nigeria. The choice of 59 participants aimed to balance depth and breadth in qualitative analysis, capturing a range of perspectives on colposcopy screening in rural settings. This number, comprising service users (n=41) and providers (n=18), was chosen to ensure a thorough representation of experiences and perceptions among the subgroups. This method provides rich, varied data while remaining feasible for detailed qualitative analysis. According to Bowling (2012), the research population includes all individuals or entities that are eligible for a particular study. In this case, the population was divided into two main groups: service users (n=41) and service providers (n=18), each contributing unique and complementary views towards the research goals.

The service user group consisted of 41 women of reproductive age who are eligible for colposcopy screening and live in the rural areas of Rivers State. This group was subdivided into three categories:

1. Women who have undergone colposcopy screening (n=17): This subgroup provides insights into the actual experiences of the screening process, highlighting the facilitators and barriers encountered.
2. Women who have not undergone colposcopy screening (n=24): Including this subgroup is essential to understand the reasons that prevent eligible women from using screening services, which can inform strategies to improve service uptake.
3. Women living with HIV (n=11): This subgroup (comprises of both those that have undergone the screening and those yet to undergo the screening) is particularly important due to the increased risk of cervical cancer in HIV-positive women, offering a perspective on how HIV status intersects with cervical cancer screening.

The justification for this three-part division within the service user group is its ability to encompass a wide array of experiences and viewpoints, including those who have and have not utilised colposcopy services, as well as individuals considered at high risk. This method facilitates a detailed examination of the elements affecting screening participation and experiences among various segments of the intended population.

The service provider group, composed of 18 healthcare professionals skilled in and actively providing colposcopy screening services in rural hospitals throughout Rivers State, was assembled for focus group discussions. The involvement of this group fulfils several vital objectives:

1. It contributes a professional viewpoint to the execution and provision of colposcopy services, shedding light on systemic obstacles and potential areas for enhancement.
2. It permits the cross-verification of information from service users and providers, thus strengthening the reliability and depth of research outcomes.
3. It aids in identifying possible inconsistencies between the experiences of patients and the perceptions of providers, which could lead to focused efforts to better service provision and engagement.

This meticulously devised sampling structure, which includes both service users and providers in the rural locales of Rivers State, guarantees an all-encompassing review of the factors that affect the uptake of and experiences with colposcopy screening. Incorporating varied perspectives from women with different levels of exposure to colposcopy screening, including those living with HIV, in conjunction with the expertise of healthcare professionals, this research endeavours to yield results that have profound implications for policy, practice, and subsequent studies in the prevention of cervical cancer, particularly within the rural Southern Nigerian context.

3.6.7 Data collection

This section provides an overview of how constructivist assumptions shape and inform data collection using two common methods - one-to-one interviews and focus group discussions. It also provides detailed procedure or process of data collection of this research.

3.6.7.1 Constructivism and Qualitative Data Collection

Constructivism holds that meanings are not fixed but emerge through engaged dialogue and collaborative interpretation. The goal of research is therefore to elucidate and describe people’s subjective perspectives and lived experiences situated in specific social, cultural and historical contexts (Ponterotto, 2005).

This contrasts positivism which holds that an observer-independent reality exists and can be measured directly to derive objective facts and universal truths. Instead, constructivists aim to access intersubjective realities constructed through language. Knowledge is seen as contextually co-produced through active researcher-participant engagement. These principles have significant implications for appropriate data collection methods. Pre-determined hypothesis testing, and quantitative measures are rejected. Constructivist research favours open-ended, interactive methods like interviewing and focus groups that allow meanings to unfold flexibly through dialogue (Creswell and Poth, 2018). Qualitative methodology was chosen as the most appropriate to examine the experience, perception and challenges faced by these healthcare professionals and patients regarding colposcopy cervical cancer screening uptake based on its impacts in understanding how the service providers and users perceived the screening method (Munn *et al*., 2014). This involved an in-depth semi-structured interviews of women of reproductive age that are eligible for colposcopy cervical cancer screening living in rural communities and focus group discussion with healthcare professionals trained on colposcopy and has been involved in providing cervical cancer screening services, to ascertain their experiences, perceptions, and challenges of colposcopy screening uptake. Most studies combine in-depth interviews and focus group discussion to elicit the in depth understanding and opinion of the participants as well as validity, hence, the researcher’s choice (Jacobsen, 2020).

3.6.7.2 Interview guide development

In preparation for fieldwork, the development of a comprehensive topic guide, also referred to as an interview guide, is critical for ensuring methodological rigor and alignment with research objectives (Arthur and Nazroo, 2003). These guides serve as structured documents outlining the key themes and questions to be explored during interviews, providing a framework that facilitates focused inquiry while allowing for the emergence of unanticipated insights (Larkin, Watts, and Clifton, 2006). The construction of interview questions was informed by a thorough review of extant literature on the experiences and perceptions of healthcare professionals and women regarding colposcopy for cervical cancer screening in Nigeria. This process of question formulation adhered to Rosenthal's (2016) principles of qualitative interviewing, emphasising the need for questions to be genuinely open-ended and neutral, singular in focus, and unambiguous in their phrasing. To ensure neutrality, careful consideration was given to the framing of questions to avoid presupposing interviewee opinions or inadvertently guiding responses. The principle of singularity was strictly observed, particularly given the multifaceted nature of the research objectives, to maintain clarity and focus on each line of inquiry. The clarity of questions was subjected to rigorous review by the supervisory team, enhancing the validity and reliability of the interview instruments. Two distinct topic guides were developed: one for individual interviews with women and another for focus group discussions with healthcare professionals. These guides were structured to follow a logical progression (Clarke and Braun, 2013), commencing with introductory questions to establish rapport, proceeding to core inquiries addressing the research objectives, and concluding with more sensitive topics. The inclusion of prompts (e.g., "Could you elaborate on that?" or "What makes you say that?") was strategically incorporated to encourage depth and richness in participant responses. The women's topic guide encompassed questions related to demographic information, personal experiences with colposcopy screening, perceived barriers and facilitators, and suggestions for improvement. The healthcare professionals' guide focused on their perspectives on current practices, challenges in implementing colposcopy screening, and strategies for enhancing service delivery and uptake. These topic guides were designed to facilitate a fluid conversational flow while ensuring comprehensive coverage of research themes. Their flexible structure allowed for the exploration of emergent topics and unexpected findings, aligning with the iterative nature of qualitative inquiry. This approach supports the phenomenological underpinning of the study, enabling a deep exploration of lived experiences and subjective meanings ascribed to colposcopy screening. The meticulous development of these topic guides reflects a commitment to methodological excellence consistent with doctoral-level research. By providing a structured yet flexible framework for data collection, these instruments enhance the study's potential to generate rich, nuanced data that can contribute substantively to the understanding of colposcopy screening experiences in the Nigerian context. This approach not only ensures alignment with research objectives but also facilitates the generation of data suitable for sophisticated phenomenological analysis, positioning the study to make significant contributions to both theory and practice in the field of cervical cancer screening in resource-limited settings.

3.6.7.3 One-to-One Interviews

In-depth interviewing is commonly used in constructivist studies to explore individuals lived experiences, meaning-making processes and subjective interpretations of phenomena. The use of in-depth interviews is an effective and suitable method of collecting rich information from women regarding their experiences and perceptions of the colposcopy method of cervical cancer screenings. This approach enables women to express their personal narratives, beliefs, and viewpoints in their own language, offering rich, contextual insights (Patton, 2015). The interactive dialogue between the researcher and the participant aids in delving into sensitive subjects and jointly constructing knowledge (Creswell and Poth, 2018). In-depth interviews are consistent with the interpretive theoretical perspective, facilitating a detailed understanding of how socio-cultural factors influence women's experiences with cervical cancer screening (Mack *et al*., 2005). This method aligns with constructivism’s emphasis on elucidating personal perspectives contextually through language (Roulston, 2010). Constructivist principles lead to a flexible, open-ended interview approach guided by the participant’s narrative rather than a rigid structure. The interviewer adopts an empathetic stance seeking to enter the lifeworld of the participant without judgement. Questioning techniques aim to probe meanings in the language used while bracketing the researcher’s preconceptions (Mishler, 1986). Knowledge is seen as interactively co-produced through the researcher-participant dialogue itself as perspectives converge to generate new understandings. The approach privileges personal articulations and collaboratively constructing contextualised knowledge from subjective frames of reference.

Prior to data collection, I recruited a respected female staff nurse from the rural health facility, as my research assistant and chaperone due to her deep understanding of the community's culture, trusted position, and ability to communicate in local dialects. Her presence helped participants feel more comfortable sharing their personal experiences, while her professional background ensured ethical standards were maintained throughout the study" (Liamputtong, 2019; Nowell *et al*., 2017).

The Individual face to face interviews with service users (women) were carried out in a private room in the presence of a chaperone (female colleague). And those unable to attend physically were interviewed over the telephone. English language was used throughout the interview session with participants because it is the common language of communication in the area and all the participants speaks and understands English language. The term colposcopy was understood by all the participants as it was described and explained to them as a simple exam where a doctor uses a special magnifying instrument to check their cervix for any health concerns. Each Interviews session lasted between 30 to 45 minutes and participants responses were digitally recorded and transcribed verbatim. Vignettes were used to stimulate discussion (Ritchie and Lewis 2003). Vignettes are short hypothetical scenarios and are a useful method of discussing sensitive issues as they are less threatening than direct questions. Vignettes can also be useful if participants lack personal experience of a topic and offer an opportunity to understand participants' perspectives on the topic (Braun and Clarke 2013). Discrepancies between participants' reality and the scenarios presented in the vignettes may cause problems (Hughes and Huby 2002). The vignettes (see Appendix 1) were developed using the findings from the scoping review to minimize this disadvantage. Participants were presented with short scenarios that were based on the experiences of women regarding colposcopy screening to explore perceptions and barriers identified in phase one. The vignettes were developed at the beginning of the research and were revised after scoping review to reflect and examine certain perceptions and barriers in greater depth. For example, some perceived barriers, such as lack of time and providing for family, were added. Non-leading and open-ended questions were used to explore participants' perspectives of the stories, how stories applied to them and how characters in the stories would or should respond (Braun and Clarke 2013). In this study, unstructured questions were used to explore and understand women's health beliefs about cervical cancer and how these beliefs affect their attitudes towards screening. Probing questions were used to assess participants' understanding of the need for colposcopy screening and what they perceived as barriers (Green and Thorogood 2009).

3.6.7.4 Focus Group Discussions

Focus groups involve facilitated group discussion exploring people's views, meanings, and experiences in a collective setting. Focus group discussions are a fitting method for gathering insights from healthcare professionals about their experiences and views on colposcopy cervical cancer screening services. This participatory approach encourages the collective examination of shared experiences, allowing participants to expand upon and question each other's viewpoints (Morgan, 1997). Such groups are instrumental in the joint creation of knowledge via dynamic interactions, which is in line with the constructivist paradigm (Creswell and Poth, 2018). This technique is apt for grasping contextual elements, like healthcare system policies and resources, that influence healthcare professionals' practices and perceptions (Patton, 2015). The method aligns with constructivism by explicating shared knowledge and norms constructed through social interaction (Sim, 1998). The moderator promotes open, flexible discussion following the participants' leads. An empathetic style elicits multiple perspectives without judgement. Assumptions are bracketed to avoid framing the discourse externally. Attention focuses on language use and meaning making within the group context (Marková *et al*., 2007). From a constructivist lens, knowledge emerges from the dynamics of the group itself through interactive meaning making. The method illuminates both communality and diversity in subjective standpoints as participants respond to and build on each other's views (Basit, 2010). The group context provides a social arena for collaboratively co-constructing contextualised understandings. The focus group discussion with healthcare professionals took place in centre known and accepted by the participants.

Focus group discussions were conducted at the Ahoada general hospital centre in order to collect information. I was only able to conduct two focus groups due to time, logistical constraints and the number of healthcare professionals that indicated interest to participate. When it comes to recruiting participants for focus groups, there was a lot of hassle involved since there are a lot of issues related to contacts between the researcher and potential participants, as well as issues related to trust. Focus groups are a method of gathering data using moderated discussion as a way of understanding participants' perceptions and experiences about a particular topic that is being studied by the researcher (Kruger and Casey, 2009; Kitzinger, 1995). Multiple focus groups can be used to gather information difficult to obtain through individual interviews. This is due to the synergy and dynamism generated within homogeneous groups, which may reveal unarticulated norms and normative assumptions (Kamberelis and Dimitriadis, 2005). With an informative approach, focus groups transcend the boundaries of individual memory since, as one individual expresses a viewpoint, this stimulates the memories of others who have had similar experiences. As a result, others are able to share their perspectives on the "raised point" (Kamberelis and Dimitriadis, 2005). The purpose of focus groups is to collect information from individuals with similar interests or backgrounds from a variety of perspectives (Beya and Nicoll 2000; Minichielo *et al.,* 2004). The focus group discussion was facilitated by a 'group dynamic' that allowed for the collection of rich, in-depth, and detailed information (Kamberelis and Dimitriadis, 2005). Focus groups are often described as a magnifying glass (Sengstock, 2008) that induces similar social interactions that occur in everyday life but with greater clarity, according to Kamberelis and Dimitriadis (2005). Participants provided insights into cervical cancer, colonoscopy screening procedure and logistics as well as the uptake of this procedure among rural women.

The participants also discussed the factors that influenced their decision to screen or not screen, how screening can be improved, and how emerging themes were identified by the interviews. The healthcare professionals who participated in the focus group discussions were all trained in colposcopy. The focus group session was facilitated by the researcher, who took notes and an assistant who did the recordings. The discussion was performed in English language, and a discussion guide or template was used by the researcher to moderate the discussion with the help of an assistance and their responses were recorded on tape and transcribed verbatim. In the focus group session, the emerging concepts (derived from the interview analysis) were further explored (Minichielo *et al.,* 1995). Within the existing literature, the ideal number of participants to be included in a focus group has been a subject of debate. Several studies have shown that a single section should have between four and twelve respondents (Creswell, 1994; Denzin and Lincoln, 2000; Tang and Davis, 1995). According to Tang and Davis (1995), care should be taken when selecting a sample size, as the size of a group could affect the dynamics of the discussion. Each focus group of nine participants was conducted in this study. The purpose of this small number was to provide equal participation opportunities for each participant, as well as to provide the researcher with a manageable number in which to conduct the research (Jamieson and Williams, 2003; Stewart and Shamdasani, 1990). In accordance with the participants' consent, a tape recorder was used to record the focus group session, and notes were taken. A focus group session lasted between one and two hours. To get the participants' attention and gradually engage them in the discussion, an unrelated question was used as an icebreaker. In addition to guiding the group session, the unstructured interviews helped prevent the loss of any important aspects of the research questions (Minichielo *et al*., 2004; St John, 2004). All discussions were conducted in English by the principal researcher.

In conclusion, constructivism holds significant epistemological implications for appropriate research data collection techniques. Its emphasis on elucidating subjective meanings situated contextually leads to preferences for open-ended interactive methods like interviews and focus groups. These allow participants to articulate personal perspectives and jointly construct knowledge with researchers through engaged dialogue and interpretation. While debates continue regarding constructivism's premises, it provides a coherent framework guiding data collection to access intersubjective realities.

3.6.8 Data transcription

I conducted the data transcription and preliminary analysis process with strict adherence to methodological rigor, following the best practices of qualitative research at the doctoral level. Transcription and initial analysis began immediately after the first data collection phase from service users (women), in line with the iterative analysis principle in qualitative research (Saldaña, 2021). This method enabled the refinement of interview protocols for subsequent phase, permitting the investigation of emerging themes and the modification of research questions to fully capture the participants' experiences. Completing the initial transcription before starting the second interview phase (FGD) with service providers was a strategic choice to avoid data saturation and to foster the discovery of new, significant insights (Liamputtong and Ezzy, 2005). This step-by-step data collection and analysis process demonstrates the study's dedication to theoretical sampling, an essential aspect of robust qualitative research methodology (Charmaz, 2014). To uphold the highest ethical standards and guarantee participant confidentiality, a stringent anonymisation protocol was established.

Participants were given pseudonyms, and any identifying information was meticulously removed from the transcripts, and the data was stored electronically with password, in line with institutional ethical standards and global best practices for safeguarding privacy in qualitative research (Kaiser, 2009).

Including anonymised sample transcripts from both individual interviews and focus groups (refer to appendices 12 and 13) fulfils several methodological objectives. It firstly increases the research process's transparency, facilitating peer review and critical examination of the data gathering and analysis methods. Secondly, it offers tangible instances of the data's depth and richness, showcasing the interview protocols' capacity to draw out significant participant responses. Lastly, these transcripts act as models for the coding and analysis techniques used, providing a window into the emergence of themes and theoretical frameworks (Creswell and Poth, 2018).

3.6.8.1 Anonymising interview data

Maintaining participant confidentiality and privacy is a cornerstone of thorough qualitative research, especially in studies addressing sensitive health-related issues (Braun and Clarke, 2006). Anonymisation is a vital measure that protects participants' identities while allowing research findings to be shared. This study adopted a detailed approach to anonymisation, ensuring participant safety while retaining important contextual data. Following established qualitative research ethics guidelines (Saunders *et al.,* 2015), a thorough anonymisation protocol was enacted. This involved systematically changing or omitting identifiable details, such as names, religious affiliations, locations, cultural identifiers, and job information. This protocol's application was a significant methodological step, crucial for upholding the ethical standards expected in doctoral research. Pseudonyms were carefully given to participants, chosen not just to replace names but to mirror the socio-cultural backdrop of the study, thus maintaining data authenticity without sacrificing anonymity. This method is particularly vital when presenting findings related to caregiving challenges and interpersonal dynamics, as sensitive data extracts, such as instances of negligence, require increased attention to protect participants. The anonymisation process was carefully applied, acknowledging that excessive de-identification could remove essential contextual information. When socio-cultural and religious beliefs and values were crucial for understanding participants' experiences, these elements were preserved in direct quotes. This choice demonstrates an advanced handling of the balance between protecting participants and maintaining data richness, which is indicative of high-quality qualitative research at the doctoral level. The inclusion of specific socio-cultural and religious references in quotes was based on a thorough evaluation of their importance to the analytical narrative and the risk of participant identification. This method is in line with current discussions in qualitative research ethics that acknowledge the situational aspect of confidentiality and the risk that complete anonymisation might unintentionally silence or distort participants' voices (Tilley and Woodthorpe, 2011). By using this nuanced approach to anonymisation, the study strikes a careful balance between ethical obligations and methodological thoroughness. This strategy not only safeguards participants but also upholds the data's integrity and authenticity, facilitating a detailed, contextually informed analysis that significantly enhances the field.

3.6.9 Data analysis procedure

This data analysis section provides a rigorous thematic analysis procedure. This section provided background on the choice of Braun and Clarke (2017) thematic analysis as an important qualitative method and outline the systematic process undertaken. This section illustrated the coding process, theme generation and refinement, and final written analysis. Guidance was offered on developing insightful themes supported by the data through active analysis and description or summary of topics discussed by participants. The value of thematic analysis for identifying new understandings and areas for further research was highlighted. Employing Braun and Clarke thematic data analysis aims to understand the lived experiences of participants and the meanings they attach to those experiences (Neubauer *et al.,* 2019). The researcher suspends prior assumptions or frameworks to focus solely on descriptions provided by participants about a particular phenomenon of interest (Bevan, 2014). Data is often gathered through open-ended, conversational interviews where individuals describe their first-hand experiences in detail (Giorgi, 2009). The analysis follows systematic steps to extract meaningful themes while staying close to the data. First, interviews are audio-recorded and transcribed verbatim to capture all details. The researchers then read transcripts closely to immerse themselves in the data and gain a holistic understanding. Next, the transcript is divided into meaning units which reveal shifts in meaning. Each meaning unit is transformed into psychologically sensitive descriptions using the participant's own words and avoiding interpretation. The transformed meaning units are synthesised into a descriptive narrative capturing the overall structure and essence of the experience. Focus is placed on common features across participants to understand the phenomenon at a universal level (Neubauer *et al.*, 2019). Throughout this process, the researcher engages in reflexive journaling and bracketing to become aware of personal biases that may influence analysis. The end goal is a descriptive synthesis revealing the essence of the lived experience in its own terms, rather than being shaped by existing theory or the researcher’s perspective (Bevan, 2014).

For this study on healthcare professionals and patients experience and perception of colposcopy cervical cancer screening uptake, descriptive phenomenology is most appropriate because the aim is to understand the features and meaning of the experience directly from those who have lived it. Capturing rich first-person accounts will provide insights that questionnaires or conceptual analysis cannot. The open-ended interview format allows new meanings to emerge that may not fit existing frameworks. Suspending assumptions will enable capturing novel dimensions that have not been identified in past literature on this phenomenon. The descriptive approach will lay the groundwork for later interpretive research by generating an evidence-based description as a foundation. Thematic analysis is a qualitative method that identifies, analyses, organises, describes and reports themes found within a data set (Braun and Clarke, 2006). Thematic analysis highlights similarities and differences across the data set to uncover patterns of meaning (Maguire and Delahunt, 2017).

3.6.9.1 Rational for choosing Braun and Clarke Thematic Analysis

The purpose of thematic analysis is to identify themes or patterns of meaning and significance in relation to the research questions (Clarke and Braun, 2017). After a thorough assessment of various analytical methods, Bruan and Clarke thematic analysis was chosen as the most suitable for data analysis to answer research question due to its adaptability and emphasis on qualitative data, which complements the interpretivist framework of the study. Its applicability across different theoretical and epistemological perspectives renders it especially suitable for the interpretive methodology foundational to this research. This approach was chosen because it is the most appropriate analytical approach for use with vignettes (Braun and Clarke, 2013). Themes capture something important about the data in relation to the overall research problem and represent some level of patterned response or meaning from data relevant to the phenomenon under study (Braun and Clarke, 2006). This approach provides a purely qualitative, detailed, and nuanced descriptive account of the data corpus (Clarke and Braun, 2017). It can be used to analyse different types of data from interviews, surveys, focus groups, documents, field notes, and audio-visual materials.

Thematic analysis involves a six-phase process starting with familiarization of data, generation of initial codes, searching for themes based on codes, reviewing and refining themes, defining and naming themes, and finally writing up the analysis using vivid examples and links to research questions and literature (Braun and Clarke, 2006; Maguire and Delahunt, 2017). High quality thematic analysis requires looking beyond surface meanings to identify and examine underlying ideas, assumptions, and conceptualizations represented in the data (Braun and Clarke, 2006). Themes must capture key meanings evident in the data relevant to the research problem.

Thematic analysis is a process whereby data are coded, organised into themes, and clustered to form more specific themes. This is done to illustrate what the text is about. Thematic analysis employs both inductive and deductive approaches to data interpretation. The inductive "bottom-up" method derives categories and relationships from the data itself, while deductive reasoning is guided by the research question and broader theoretical assumptions. To enhance transparency and facilitate reader evaluation, a detailed methodological overview has been provided. The analysis of transcripts followed the thematic analysis framework proposed by Braun and Clark, ensuring a rigorous and systematic approach to identifying, analysing, and reporting patterns within the data. This dual approach allows for a comprehensive exploration of emergent themes while maintaining alignment with the study's theoretical underpinnings.

Data from in-depth interviews and focus group were transcribed and coded into meaningful units and the codes were based on explored Phenomenon since there is limited existing theoretical literature (Picciotto and Fox, 2018). The coded information was used to determine themes and patterns that form articulated ideas or concepts to achieve the research objectives (Veal, 2018). The data were read several times for broad emerging themes which were further condensed into more specific themes. Analysis of similarities and differences occurred within and across the data. In addition, the description of the experience and perceptions were summarized into key findings. NVivo 12, a robust qualitative data analysis software, was utilised in this study to streamline the management and analysis of extensive data gathered from in-depth interviews and focus group discussions. The choice of NVivo was based on its proficiency in handling substantial amounts of qualitative data, simplifying the coding and organisation process, and bolstering the transparency and rigor of the analysis (Zamawe, 2015). Data management with NVivo commenced with transcribing audio recordings from interviews and focus groups into text documents. These transcripts were subsequently imported into the NVivo software, forming a centralized repository for all qualitative data. NVivo's advanced organisational tools facilitate efficient storage, retrieval, and cross-referencing of data sources, ensuring a methodical and structured data management approach (Bazeley and Jackson, 2013).

In the coding phase, NVivo aided in the generation and assignment of codes to pertinent transcript segments, allowing for the detection of emerging themes and patterns within the data (Creswell and Poth, 2018). Codes were concepts or categories that seemed significant to the researcher in explaining the meaning of data in relation to the research question. In some cases, codes were derived from previous knowledge gained both from literature and phase one, while in other cases, they were developed from a new and unexpected dimension in the data (Bazeley 2007). Codes ranged from attitudes, emotional, to beliefs, to context surrounding beliefs, all in relation to colposcopy screening. As coding was an iterative process, one interview could produce a code that had not been observed in a prior interview; therefore, the researcher went back and forth between interviews, comparing them (Bazeley 2007). Following the application of all codes, they were grouped into categories from which higher-order themes and subthemes were developed to capture and interpret the meaning of the data and stories shared by participants (Ritchie and Lewis, 2003). A coding scheme was developed to visually capture the data essence. The software's coding features, such as the creation of hierarchical code structures and memo annotations, supported the repetitive and inductive analysis crucial to qualitative research. NVivo also permits the smooth incorporation of researcher memos, field notes, and additional materials, creating an all-encompassing database for all data and analytical observations. This capability supports the establishment of a detailed audit trail, improving the transparency and verifiability of the research methodology (Lincoln and Guba, 1985).

Furthermore, the querying and visualization tools of NVivo facilitated the exploration of data relationships and connections, aiding in the detection of patterns and the cultivation of profound insights (Bazeley and Jackson, 2013). These features supported the study's descriptive and constructivist methodology, allowing for a detailed comprehension of the contextual elements influencing the participants' experiences and viewpoints. Utilising NVivo's features, the research profited from effective data organisation, thorough coding, and analytical procedures, as well as improved clarity, all of which bolstered the reliability and validity of the research outcomes.

Table 3.1 How the six phases of thematic analysis, adapted from Braun and Clarke (2006).

Phase	Description of phase
1	**Familiarisation**: The researcher became familiar with the data by rereading the entire data set, verifying the audio recordings, and perusing the transcription explicitly.
2	**Generating initial codes**: My approach looks at the data from the health-belief model employed in this study by meticulously examining each data item from the health belief framework to investigate the respondents' attitudes or beliefs towards colposcopy screening perceptions and barriers, with the aim of understanding and predicting their health behaviour employing highlighters and margin notes to aid in interpretation and identification of relevant themes. I then compiled codes from the data set for each participant and interview, assigning appropriate names to these codes. I divided it into two sub-phases on my own to facilitate analysis: first phase involves creating a list of codes that includes **identifiable participant numbers,** interview numbers, and code numbers. These codes were used for the purpose of adding to themes and for audit purposes. In the second phase the list of codes was filled with verbatim data retrieved from transcriptions.
3	**Searching for themes**: this involved production of tangible copies of the data obtained in the second phase and manually generating cards for each coded item. Then, categorising these cards into groups based on potential themes, using the researcher's own terminology. Engaging in repeated reading of the extracts to identify connections between them and developing initial thematic maps for each participant.

4	**Reviewing themes**: this entailed the development of a collection of potential themes and corresponding sub-themes, examining all gathered data to identify consistent patterns, potentially reclassifying certain data as comprehension deepens (an ongoing and natural process), assessing the effectiveness of themes in relation to the entire dataset for each participant, and revisiting reclassification and refinement until a satisfactory representation of the data's structure is achieved and a narrative that addresses the research question is generated.
5	**Defining and naming themes**: this entailed a concise description of the specific scope and context of each theme, and consistently explaining how the sub-themes contribute to the main theme. The researcher also had to identify the interesting aspects of the sub-themes and explain why they are interesting, so as to make sure there is minimal overlap between themes.
6	**Producing the report**: This phase entailed the conveyance of the narrative conveyed by the data and surpassing mere presentation.

3.6.9.2 Benefits and Limitations of Thematic Analysis

Given the growing recognition and importance of qualitative research, it is crucial to perform it with a rigorous and systematic approach to obtain relevant and valuable outcomes. Braun and Clarke's (2017) thematic analysis was employed as the primary analytical approach in this study, facilitating the identification, analysis, and reporting of patterns or themes within the qualitative data collected from in-depth interviews and focus group discussions. This method aligned with the constructivist paradigm and interpretive theoretical perspective underpinning the research, as it allowed for the exploration of participants' subjective experiences, perceptions, and the contextual factors shaping them. In the context of this study, Braun and Clarke's (2017) thematic analysis proved to be a valuable and useful analytical approach. The inductive and interpretive nature of the analysis, as outlined in their six-phase process, allowed for a nuanced understanding of the diverse experiences, perceptions, and contextual factors influencing colposcopy cervical cancer screening among healthcare professionals and women in rural Nigeria. The clear and structured process of familiarization, coding, theme development, reviewing, defining, and naming themes facilitated the systematic identification and organisation of themes, contributing to the credibility and transparency of the research findings.

Furthermore, the flexibility of Braun and Clarke's (2017) approach enabled the integration of various data sources, including in-depth interviews, focus group discussions, and supplementary materials, providing a comprehensive understanding of the phenomenon under study. The interpretive depth achieved through this method of thematic analysis was particularly useful in capturing the socio-cultural, economic, and healthcare system dynamics shaping participants' perceptions and experiences. While acknowledging the limitations of subjectivity and limited generalisability, the benefits of Braun and Clarke's (2017) thematic analysis outweighed these concerns in the context of this exploratory, constructivist, and interpretive study. The approach aligned well with the research objectives and contributed to the generation of rich, contextualised insights that can inform strategies for improving colposcopy cervical cancer screening uptake and delivery in rural Nigerian communities. The rigorous and reflexive nature of Braun and Clarke's (2017) method ensured a thorough examination of the data, enhancing the trustworthiness and depth of the analysis.

3.6.9.1.1 Benefits of Thematic Analysis

Thematic analysis offers a versatile and adaptable approach that can be tailored to suit the requirements of various investigations. It yields a comprehensive and intricate understanding of data, while being intellectually unrestrained (Braun and Clarke, 2006; King, 2004). Thematic analysis is a qualitative technique that does not demand extensive theoretical and technological expertise. This makes it a more easily understandable method of analysis, especially for researchers who are in the early stages of their career (Braun and Clarke, 2006). While there are numerous benefits associated with employing thematic analysis, it is crucial to recognise the drawbacks of this approach as well. Thematic analysis is a versatile method that can be applied across a wide range of theoretical and epistemological approaches, making it suitable for this study's constructivist and interpretive stance (Braun and Clarke, 2006). This flexibility enabled the analysis to capture the richness and complexities of participants lived experiences and perceptions. The step-by-step process of thematic analysis, as outlined by Braun and Clarke (2006), provided a clear and accessible framework for analysing the qualitative data. This structured approach enhanced the transparency and rigor of the analysis, contributing to the credibility and trustworthiness of the findings. Thematic analysis allowed for an inductive, data-driven approach, where themes were derived from the data itself rather than being constrained by pre-existing theoretical frameworks (Patton, 2015). This inductive approach aligned with the exploratory nature of the study and facilitated the identification of unexpected insights and nuances within the data. Thematic analysis facilitated a rich, interpretive analysis by allowing the exploration of underlying meanings, assumptions, and contextual factors shaping participants' experiences and perceptions (Creswell and Poth, 2018). This depth of interpretation was crucial in understanding the complexities surrounding colposcopy cervical cancer screening in rural Nigeria.

3.6.9.1.2 Limitations of Thematic Analysis

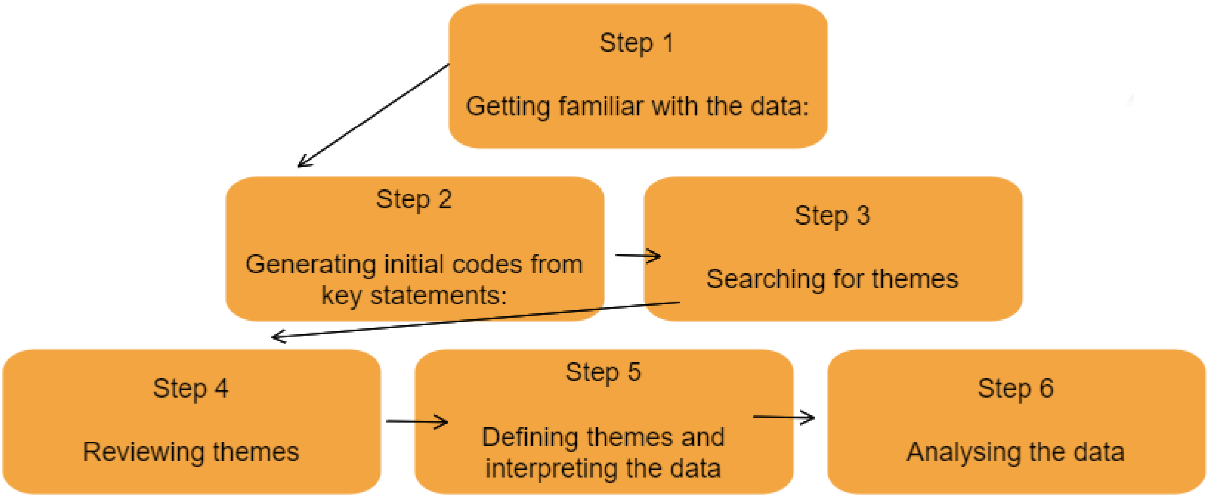
While Braun and Clarke's (2017) thematic analysis offered numerous benefits to your research, it's important to acknowledge its limitations as well. The flexibility of the method, while generally advantageous, can sometimes lead to inconsistency and a lack of coherence when developing themes as experienced in this study. This made it challenging to maintain a consistent approach throughout the analysis, potentially affecting the overall cohesion of your findings.

The method's reliance on my judgment in identifying and interpreting themes introduces an element of subjectivity. This subjectivity could have influenced the themes identified and how I interpreted them, potentially leading to biases in the analysis. It may have been difficult to ensure that my personal perspectives did not overly influence the themes developed from the data. Braun and Clarke's approach, while systematic, does not offer the same level of interpretive power as some other qualitative methods, such as discourse analysis or phenomenology. This also may have limited my ability to delve into the deeper, underlying structures of language or the essence of lived experiences related to colposcopy cervical cancer screening in rural Nigeria.

The method's focus on patterns across data sets means that the continuity and contradictions within individual accounts may have been lost. This could have resulted in a less nuanced understanding of individual participants' experiences and perspectives, potentially overlooking important idiosyncrasies in the data. Additionally, the absence of clear guidelines for higher-level, more abstract theme development in Braun and Clarke's approach may have made it challenging to move beyond mere description to more interpretive analysis. This could have limited the theoretical depth of your findings.

Lastly, while the method is accessible, this very accessibility might have led to an oversimplification of the analytical process. I found it difficult to strike a balance between the method's straightforward approach and the complexity required for a truly deep, critical analysis of the data. These limitations identified while using Braun and Clarke's (2017) thematic analysis may have constrained certain aspects of this research, potentially affecting the depth, nuance, or theoretical sophistication of my findings regarding colposcopy cervical cancer screening in rural Nigeria. However, to overcome these limitations and deepen my understanding of the data, I took several deliberate steps. I combined Braun and Clarke's (2017) clear framework with interpretative phenomenological analysis, which helped me uncover richer meanings in participants' stories (Smith, Flowers, and Larkin, 2022). I regularly shared my interpretations with the participants themselves and discussed my findings with fellow researchers, ensuring my analysis stayed true to the women's experiences while maintaining academic rigor (Nowell *et al*., 2017). Throughout the process, I kept a detailed personal journal where I reflected on my analytical decisions and emerging insights, making my thought process transparent and allowing for deeper theoretical connections (Braun *et al*, 2019). These approaches helped me strike a balance between accessibility and complexity, ultimately leading to more meaningful insights into how rural Nigerian women experience and perceive colposcopy cervical cancer screening.

Figure 3.3 Stages of the Thematic Analysis



Braun and Clarke's (2017) six Phases of TA will now be discussed in more detail and in relation to this study.

3.6.9.2 Analysis of in-depth Interview and focus-group data

Data was collected through two methods, namely the one-to-one in-depth interview sessions, and focus-group discussion. The in-depth interview sessions entailed sessions with the colposcopy service-users (women), and the focus-group session was held with colposcopy service providers (health professionals). The methodology used in analysing the qualitative data from the interviews and focus groups was opted for being that the data were collected from two sources and hence had to be analysed independently or separately. The rationale for this was so that each data set could maintain the specific context and nuances inherent to each method while also recognising the unique contributions each method provides. Using this method, the researcher was able to treat the data from interviews and focus groups as distinct data.

Table 3.2 Separate Analysis Framework

Independent or Separate Analysis	
Process	Reasoning
Perform interview data on an individual basis. **Perform individual data analysis on focus group responses.**	Depth vs. Breadth: Interviews frequently yield in-depth, thorough responses from individuals. Whereas focus groups record a wider range of viewpoints and interactions between participants. Diverse Patterns: Compared to one-on-one interviews, focus groups may have different patterns and social interactions that affect respondents' answers. Data Integrity: Maintaining the context and integrity of each type of data is made easier by doing independent analyses.

Table displaying Independent or Separate Analysis *Source: Researcher's Observation*

Summarily, in this study, the researcher conducted separate analyses for the interview and focus group data. This decision was made in order to maintain the context-specific knowledge provided by individual interviews and the interactive dynamics observed in focus groups. Therefore, the research utilised thematic analysis to discover reoccurring themes and patterns in the interview data. The study also employed discourse analysis to comprehend the group interactions and the process of reaching consensus in the focus group data. This methodology guaranteed that the distinct contributions of every data source were comprehensively analysed and precisely reflected.

3.6.9.2.1 Getting Familiar with the Data

The process of becoming familiar with the data entailed the researcher listening to the audio and cross-referencing the audio with the transcribed text to ensure accuracy and proper punctuation, and any required modifications. Each line of interview data was assigned a line number sequentially, starting with the first word-processed line and ending with the last line. After the completion of each interview, a physical copy of the transcription was produced and carefully reviewed multiple times to ensure a thorough understanding of the data was attained. The interviews were analysed with the research question as the guiding principle. This entailed analysing the data by considering three aspects: first, a literal analysis to identify important dates in the experiences of colposcopy screening; second, an interpretive analysis to understand the intended meaning of the participants; and third, a reflexive analysis to examine and identify the researcher's role in the research process (Mason, 2002), after which, the process of manually coding the data then began.

As contended by Thorne, (2000); and Crabtree and Miller, (1999), some research data are textual, and may encompass several forms, such as field notes derived from participant observations, reflexive diary entries, as well as stories and narratives. To ensure ample time with the data, the researcher preserved all the records of the original data which served as a reference and standard against which subsequent data analysis and interpretations were evaluated for sufficiency (Halpren, 1983; Guba, and Lincoln, 1985). While data was gathered using interactive or interview methods, this helped the researcher to approach the analysis with his preexisting knowledge of the data at hand. Recording these thoughts while gathering data served as the basis for getting familiar with the data, and a starting point for data analysis, as the researcher was able to document his initial thoughts, interpretations, and questions (Tuckett, 2005). Irrespective of the data collector, it is crucial for researchers to thoroughly engage with the data to have a comprehensive understanding of its scope and content (Braun and Clarke, 2006).

Sample Interview Excerpts:

Tables 3.3 Displaying Sample Interview Excerpts

Researcher:	What is your knowledge of cervical cancer and the colposcopy screening programme?
Respondent:	“The screening is costly” “It is safe”

Sample Focus-Group Excerpts:

Researcher:	What barriers or challenges are preventing women from participating in colposcopy screening programme even though it is free
Respondent 1: **Respondent 2:**	Security, money, Knowledge, distance

Initial Notes and Observations

• Safety concerns • Publicity needs

3.6.9.2.2 Generating Initial Codes from Significant Statements

The second step began after the researcher conducted a comprehensive review and became acquainted with the data. This facilitated the generation of ideas pertaining to the material and the identification of notable characteristics (Braun and Clarke, 2006). This stage comprises the initial creation of code based on the data, which required the researcher to repeatedly analyse the data using a theoretical approach. Qualitative coding, as defined by Savage (2000), is the methodical examination and understanding of data through reflection and cognitive involvement. The coding process allowed the researcher to optimize and focus on specific characteristics of the data. The researcher then shifted his focus from studying unstructured data to developing hypotheses about the underlying patterns and insights within the data (Morse and Richards, 2002). While coding, the researcher identified substantial sections of text and labeled them to classify their association with a particular subject or issue in the data (King, 2004). Boyatzis (1998) defines a "good code" as one that accurately captures the qualitative complexity of the phenomena.

Following Braun and Clarke's (2006) recommendation to systematically analyse the entire dataset, the researcher gave equal attention to each data set and identified significant elements within the data set that could form the basis for themes across the dataset.

The researcher also employed different participant categorisation, such as "Healthcare professional (HP) 1" or "Women (W) 1", to identify interview data associated with specific individuals and streamline the data coding process by enabling the tracking of a verifiable path. This coding methodology was utilised as the primary step in data management throughout all twenty-three interviews. I actively participated in coding, following the Phases of Thematic Analysis outlined by Braun and Clarke (2006). This was achieved by separating relevant data from irrelevant information, while acknowledging that some participants displayed poor interest in participating despite the start of the recording. During this procedure, I adopted an open phenomenological stance, remaining aware of my preexisting notions.

Example Data Excerpt

Table 3.4 Displaying Example Data Excerpt

Interview Transcript:	*"My cultural or religious belief does not contradict the screening process the procedure was quite painful for me, and the briefing about the screening was not really understandable"* *"Cervical Cancer is known to affect women. I believe that I would not contact the virus"*
Sample Output: Significant Statement: (Initial Codes)	*Cultural or religious belief* *painful procedure*

3.6.9.2.3 Searching for Themes

The third phase commences once all data has been initially encoded and compiled, and a comprehensive list of the distinct codes detected across the dataset has been created. In this stage, the task is to arrange and organise all the coded data extracts that may be relevant into themes (Braun and Clarke, 2006). DeSantis and Ugarriza (2000) provided a precise description of the concept of the theme to assist nurse researchers in upholding methodological rigor: A theme is a conceptual construct that provides significance and distinctiveness to a recurring experience and its various expressions. Accordingly, a theme encapsulates and harmonizes the essence or foundation of the experience into a coherent entirety". The themes are discerned by amalgamating constituent elements or segments of concepts or encounters, which frequently lack significance when examined in isolation (Aronson, 1994). A theme's significance lies not in its measurable measures, but rather in its ability to capture something of importance in relation to the overarching study question (Braun and

Clarke, 2006). Themes, once recognised, are important ideas that connect large chunks of data together (DeSantis and Ugarriza, 2000).

Despite the considerable time investment required for this phase, the researcher succeeded due to a comprehensive understanding of the entire narrative of the data corpus and its individual components. This allowed the researcher to condense the descriptions provided by the participants, ensuring that the specific details of the data were accurately reflected in the themes and sub-themes that were developed (Braun and Clarke, 2006).

Table 3.5 Displaying sample outputs from the searching for themes

Interview Transcript Excerpt 1	*"My cultural or religious belief does not contradict the screening process the procedure was quite painful for me, and the briefing about the screening was not really understandable"*
Interview Transcript Excerpt 2	*"Cervical Cancer is known to affect women. I believe that I would not contact the virus"*
Initial Codes:	• *Cultural or religious belief* • *painful procedure* • Healthcare Professional Factors • Participants' Misconceptions • Gender-Sensitivity • Religion

3.6.9.2.4 Reviewing the Themes

The fourth phase commenced after the development of a group of themes, which necessitated further improvement (Braun and Clarke, 2006). In this stage, the researcher analysed the coded data extracts for each theme to determine if they exhibited a cohesive pattern. To assess the accuracy of the themes in representing the overall meaning of the data set, the validity of each individual topic was examined (Braun and Clarke, 2006). During this phase, any deficiencies in the initial coding and themes were exposed and necessitated many modifications (King, 2004). Where the researcher identified any relevant issue in the text that was not addressed by an existing code, a new had to be introduced. Also, where the researcher determined that a code was unnecessary or if it significantly duplicated other codes, it was removed (King, 2004). It is anticipated that re-coding was necessary for the data set, as coding is a continuous and natural process (Braun and Clarke, 2006).

At this stage, it may also become apparent that certain themes lack sufficient data to substantiate them or that the data were too varied (Braun and Clarke, 2006). Certain themes may converge, while others may require further subdivision into distinct themes (Braun and Clarke, 2006). The selected themes were further developed to become enough to be distinct and comprehensive enough to encompass a collection of ideas found in many text segments. The data were condensed into a more manageable collection of important topics that effectively describe the text (Attride-Stirling, 2001). The data inside themes were also seen to exhibit meaningful coherence, with a definite and observable differentiation between the topics (Braun and Clarke, 2006).

The searching for the final themes led to identifying and grouping of the themes into 9 main categories, each for patients and healthcare professionals with expectations outlines in the objectives of the study. This became necessary due to variants in perspectives, and challenges concerning colposcopy cancer screening from both the service users and the health professionals. Therefore, the final themes were split to capture the following.

Tables 3.6 Capturing the summary of themes

Patients

1.	Knowledge and Awareness
2	Motivations for Screening
3.	Barriers to Screening
4	Experiences with Screening Process.
5	Follow-up and Continuity of Care
6	Perceptions of Healthcare System
7	Information and Education Needs
8	HIV Status and Screening
9	Rural Context Challenges

Healthcare Professionals

1	Healthcare Provider Experiences and Perspectives
2	Healthcare System Limitations
3	Sociocultural Barriers
4	Geographical and Logistical Challenges
5	Patient-related Factors
6	Healthcare Provider Training and Support
7	Community Engagement and Education
8	Health System Improvements
9	Resource Allocation and Support

3.6.9.2.5 Defining Themes and Interpreting the Data

In Phase 5, the themes were labeled using the participants' own words, which deviated from Braun and Clarke's (2006) technique of thematic analysis. Each theme was then provided with an individual and succinct explanation to showcase its distinctiveness. A narrative was subsequently composed to elucidate and analyse each of the overarching themes and sub-themes. Furthermore, full data extracts were included to exemplify the depth and breadth of the data. In Phase 5, the themes were labeled using the participants' own words, which deviated from Braun and Clarke's (2006) technique of thematic analysis. Each theme was then provided with an individual and succinct explanation to showcase its distinctiveness. A narrative was subsequently composed to elucidate and analyse each of the overarching themes and sub-themes.

3.6.9.2.6 Producing the report

After thorough data analysis, I developed a definitive list of themes. For accuracy, I cross-checked these themes against the original transcripts, following Rosenthal's (2016) recommendation. Verified, I then crafted a clear, engaging report highlighting the data's key themes, in line with Braun and Clarke's (2021) guidelines. The final step was a detailed integration process, where I adeptly move between the study's three data sets for interpretation. This method, supported by Farmer *et al.* (2006) and Moran-Ellis *et al.* (2006), fostered a comprehensive understanding of the results, allowing us to establish significant connections and insights throughout the research. My meticulous approach guaranteed that my conclusions were solid and indicative of the intricate interactions among the various data sources.

3.6.9.3 Sample Outputs

The following themes emerged after classifying them into two major groups (Service-User and Healthcare Professionals):

Table 3.7 Showing themes

Experiences And Perceptions of The Service Users	Challenges:
Cultural Beliefs Shaping Understanding: Implies the long-term beliefs held by the service-users which has withheld most of the women from access colposcopy service. **Gender-Sensitivity:** This refers to the state of mind some women have felt when being accessed by a male healthcare professional.	**Healthcare Professional Factors:** This implies the attitude of the healthcare providers before, during or after colposcopy cancer screening. **Language barrier**: this implies the difficulty experienced while attending the cancer colposcopy screening, or a barrier in accessing the colposcopy cancer screening. In some cases, it means the ability to capture the words of the healthcare professionals

The concluding stage commences after the researcher has thoroughly established the topics and is prepared to initiate the ultimate analysis and composition of the report (Braun and Clarke, 2006). The documentation of a thematic analysis should include succinct, cohesive, rational, non-duplicative, and engaging description of the data inside and across themes (Braun and Clarke, 2006). Thorne (2000) advocated for researchers to effectively articulate the logical procedures via which findings were derived, in a manner that is comprehensible to a discerning reader. This ensures that the assertions made regarding the dataset are regarded as credible and convincing. Halpren (1983) advised researchers to maintain methodological notes, trustworthiness notes, and audit trail notes to facilitate the reporting process.

3.7 RESEARCHER EXPERIENCE

As an insider researcher familiar with the healthcare system and rural communities, I faced both advantages and challenges during this study. My passion for improving cervical cancer screening services in rural areas kept me motivated throughout the research process.

During interviews with women, I ensured they were comfortable and allowed breaks as needed. I utilised my interpersonal and communication skills to build rapport and facilitate open discussions (Clarke and Braun, 2013). The topic guides (appendix 3) proved invaluable in keeping the interviews focused and helping me navigate sensitive topics.

The focus group discussions (FGDs) with healthcare professionals were particularly enlightening. Participants gained insights into each other's perspectives and had the opportunity to discuss their concerns about providing colposcopy services in rural settings. I used open-ended questions to encourage healthcare providers to share their experiences freely. These discussions helped increase awareness of the challenges faced by different healthcare professionals and clarified the roles of various stakeholders in improving cervical cancer screening services.

During the icebreaker sessions, I established a good rapport with both women and healthcare providers, which encouraged them to share their stories and experiences openly. I listened attentively and recorded the interviews to ensure accurate data collection. The interviews provided valuable insights into the barriers and facilitators of colposcopy cervical cancer screening in rural areas.

3.7.1 Reflections on the challenges experienced

I approached the study with an open mind, attempting to set aside my preconceptions about rural healthcare and cervical cancer screening. This allowed me to view the data objectively, although it was initially challenging. At times, I used my experience as a researcher to probe deeper into responses or rephrase questions to make them more accessible to participants.

The main challenge I faced was identifying a gap in the existing literature and determining my unique contribution to knowledge. While there was substantial literature on cervical cancer screening, the specific context of colposcopy in rural areas in our region presented a notable gap.

3.7.1.1 Challenges Experienced in Women's Interviews

Some interactions with women proved emotionally challenging, particularly when listening to stories of delayed diagnosis or difficulties accessing healthcare. I maintained regular communication with my supervisory team to ensure my well-being during data collection. My ability to empathise with the women's experiences allowed for more open and informative interviews.

Conducting interviews in the agreed location was challenging as some of the participant failed to turn up. Some came late which sometimes led to interruptions, affecting the flow of conversation and making it difficult for me to be thorough with the interview. In some instance, we had to reschedule the interview to ensure privacy and open communication.

3.7.1.2 Challenges Experienced in Healthcare Provider Focus Groups

The challenges in this phase were different, largely due to the professional nature of the participants. Getting the participants to attend the FGD was the most challenging aspect of the data collection. Coordinating schedules for the focus groups proved challenging, given the busy nature of healthcare work in rural areas. This constrained the time available for discussions and required careful management to ensure all key topics were covered.

Another challenge I faced during the FGD was the participant not focusing on the subject matter. Some healthcare providers tended to focus more on clinical aspects or patient outcomes rather than the specific challenges of providing colposcopy services. I often had to redirect the conversation to focus on the healthcare providers' experiences and perceptions. Additionally, travelling to rural healthcare facility for the focus groups was time-consuming and costly.

Despite these challenges, the rich data obtained from both phases of the study provided valuable insights into the complex factors influencing colposcopy cervical cancer screening services in rural areas.

3.8 ETHICAL CONSIDERATION

Adherence to ethical principles is very important for any research work. Therefore, in keeping with the research ethics policy and code of practice, ethical approval was obtained from the College of Nursing, Midwifery, and Healthcare Research Ethics Panel of university of west London (approval number 01255)., and National Health Research Ethics committee of Nigeria (NHREC), through Federal Ministry of Health and Rivers State Ministry of Health research ethics committee (ref. no: RSHMB/RSHREC/2022/021) where the research was conducted. Permission was also obtained from the Medical Directors of all the general hospitals selected for the study and the community heads concerned. Written consent was also obtained from all study respondents after the purpose of the research had been explained to them and they had been allowed to ask questions before the interview. Data collected is kept under lock and key, the principal investigator being the only one with access to it.

3.8.1 Ethical issues to be addressed.

The participants were clearly informed about the purpose of the study, anonymity and free will to participate and withdraw at any time from the study without providing any reason. To ensure anonymity and confidentiality participants name were used, participants were given a code following which data were transcribed. Interviewer administered questionnaire was used to obtain the participants response. To guarantee privacy interviews were conducted in a private room. The interviews were organised and conducted at their free time to ensure compliance and convenience. To avoid coercion participants were not approach directly to request for their participation. However, participant's information sheet and consent form were sent prior to data collection and one can decide not to appear for the interview.

The participant's information sheet and consent form were written in English language, outlining the purpose and important of the research, stating clearly that participation is voluntary, and they can quit at any time. They were reassured that there is no wrong answer and can express their views. All potential participants received information about the research through the participants information sheet which was also explained to them, to enhance understanding and cooperation. They were given ample time to reflect on the information given and ask questions where necessary. The participant information sheet contained information on possible risks and discomforts, possible benefits, voluntary participation and withdrawal and contact persons for additional information. Participants were required to give their consent by signing an informed consent form.

3.8.2 Debriefing

In phase one, as sample size goals had been reached to fill the study objectives, the last week of the awareness campaign was used to post debriefing information. This debriefing document (Appendices 14) included general information about colposcopy answering questions women may have such as what to expect when undergoing colposcopy screening, does it hurt and how often women should be screened. Debriefing information was posted in hospitals, religious places, markets, and community centres. The same debriefing information document was sent to participants after the interview to deal with any worries participants may have because of the discussion. Ample opportunity was offered to participants to ask questions at the end of the interview, which all participants used, and the researcher at the end of the interview or the next day tried to help some participants who asked about how to find a suitable colposcopy centre nearest to them.

3.8.3 Potential Risks and Benefits

Participants were informed about potential risks or discomforts and benefits associated with this study. The potential risk or discomfort was due to the sensitive nature of some questions. There were also potential emotional and psychological upset owing to the sensitivity hence necessary counselling was made available for those who may require it. Potential benefits of this study are that it will contribute towards knowledge and will help in developing interventions concerning cervical cancer to help health workers and community members in this state and beyond.

3.8.4 Privacy and Confidentiality

All information shared by participants during this study was kept confidential and used only for the intended purpose. Therefore, participants name was not required, instead serial numbers were used. Information received was not shared with anyone under any circumstance before, during or after the successful completion of the study.

3.8.5 Voluntary Participation and Withdrawal

Participating in this research was non-mandatory. Participants were given the choice to answer the entire questionnaire or part of it if they so wish. They could choose to withdraw from the study at any point in time. They could also choose not to answer any question they were uncomfortable with. They were also made aware that their decision to not participate in the study will not affect them in any way.

3.8.6 Compensation

Participants who agreed to be part of the study did not receive any form of payment or compensation for partaking in this study.

3.8.7 Data Storage and Usage

Data collected for the study has been stored electronically on laptop computers, pen drives, external hard disk drive and google drive. All these are protected with passwords which is known only to the principal investigator. Hard copies of the information are also kept under lock and key with only the principal investigator having access to it. The information stored will be kept for approximately a year after the dissertation has been submitted and approved, after which it will be destroyed.

3.8.8 Funding Information

This study was funded by the principal investigator and Total Energies EP Nigeria Limited.

3.8.9 Data Ownership

The principal investigator has sole ownership of the data collected during the study. Hence access to the data is exclusive to the principal investigator.

3.8.10 Conflict of Interest

This study was not associated with any conflict of interest.

3.8.11 Dissemination of Results and Publication

After the research report is approved by the authorities of University of West London, it will be communicated to the health workers and the Rivers State ministry of Health. The findings of this research will be submitted to the Rivers State ministry of health for presentation during the annual performance review of the state. It will also be published in a peer reviewed journal.

3.9 SUMMARY OF CHAPTER

In my view, phenomenological interpretations based on a philosophical orientation have value in research and clinical practice. This is because they allow patients' voices to be heard authentically and compassionately. My view on the investigation was phenomenological in nature and I was open to entering into the inquiry in that way. My prejudgments were acknowledged, but I was open to the possibility of understanding differently, perhaps through the generation of co-created accounts during the research interview process. In this chapter, we outline the research design process from recruitment through to emerging themes that are relevant to the study. Also, the study pointed out the difficulties encountered during recruitment and sampling, as well as the subsequent methodological and research implications. Furthermore, this chapter reflected on the data collection methodology and how it was justified, which was achieved by using interviews and focus groups to collect the data. The use of this methodology enabled the study to examine substantial issues of flexibility that were identified. Nevertheless, it was also acknowledged that these methods had a few limitations. The next chapter will highlight the findings from individual interview with patients, identifying themes and sub-themes regarding their experiences, perceptions and challenges as well as factors that motivates the uptake of colposcopy cervical cancer screening.

CHAPTER FOUR

FINDINGS FROM ONE-TO-ONE IN-DEPTH INTERVIEW WITH PATIENTS (SERVICE USERS)

This chapter presents the findings from the in-depth interviews conducted with 41 women in rural areas regarding their experiences, perceptions, and barriers related to colposcopy cervical cancer screening. The analysis revealed nine overarching key themes and several subthemes that provide insight into how lived experiences and perceptions interact with systemic barriers to influence the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural areas. The chapter begins with an icebreaker section featuring vignette scenarios, designed to relax participants before the main interview questions. Additionally, a summary of participant characteristics is included to provide context for their backgrounds. This structured approach allows for a comprehensive understanding of the women's stories, illuminating the complex factors influencing their decisions and experiences related to colposcopy services.

4.1 INTRODUCTION

Reporting research findings from one-to-one in-depth interviews of patients' experiences, perceptions, and challenges related to colposcopy screening uptake is an essential aspect of qualitative research studies. These interviews provide valuable insights into the subjective perspectives and experiences of individuals who have received or declined to undergo colposcopy screening. By examining the data obtained through such interviews, researchers can gain a deeper understanding of the factors that influence patients' decisions to accept or decline this crucial health examination.

The in-depth interviews conducted for the purpose of reporting research findings on colposcopy screening uptake provide an opportunity for participants to share their personal experiences, perceptions, and challenges related to this examination. These interviews allow researchers to explore a range of themes, including patients' understanding of colposcopy, their concerns about the procedure, their fears and anxieties, their perceptions of its benefits and risks, and their perceived barriers to uptake.

Through these interviews, researchers can gain a deeper understanding of the factors that influence patients' decisions to undergo colposcopy screening. These factors can include personal beliefs, cultural factors, healthcare providers' recommendations, previous experiences, and perceived barriers. By examining the data obtained from patients' experiences, researchers can identify potential areas for improvement and develop strategies to enhance colposcopy screening uptake rates.

Reporting research findings from one-to-one in-depth interviews of patients' experiences, perceptions, and challenges related to colposcopy screening uptake is a valuable approach to understanding the complexities of women's decision-making regarding this important health examination. By examining the data obtained through these interviews, researchers can gain valuable insights into potential factors that influence patients' decisions to accept or decline colposcopy screening and contribute to the development of effective strategies to increase screening rates and improve patient outcomes.

Cervical cancer screening through colposcopy examination is an important preventive health measure for women, yet perceptions and experiences of this procedure vary widely. Through an in-depth qualitative interview with woman, key insights emerged regarding the patient journey to colposcopy and impressions of the procedure itself. This section reflects patients' experience and perception of colposcopy cervical cancer screening. It consists of themes and sub-themes which reflect these perceptions and experiences. Colposcopy is a crucial diagnostic tool in women's healthcare, particularly for preventing cervical cancer and assessing cervical health. This study has examined the colposcopy screening procedures in Rivers State, Nigeria, aiming to understand the complex factors influencing its implementation and the resulting impact on women's utilisation of this important healthcare treatment.

My goal in this study is to clarify the current state of colposcopy screening methods in Rivers State and examine how these practices influence women's utilisation patterns. The results will illuminate the current obstacles and achievements in the execution of colposcopy screening, offering significant perspectives for policymakers, healthcare professionals, and stakeholders engaged in women's health programmed in the area. The findings encompassed qualitative issues reflecting one-to-one in-depth interview with patients (service users). Based on my analysis of the interview transcripts, I have identified key themes and subthemes pertaining to women's experiences, perceptions, and the obstacles affecting colposcopy cervical cancer screening in rural areas (table 4.1):

Table 4.1 Emerging themes and subthemes from phase 1 data collection

Key questions	Themes	Subthemes
a) What do you know about cervical cancer and colposcopy? b) Can you describe what happens during a colposcopy procedure?	Knowledge and Awareness	- Limited understanding of cervical cancer and screening - Misconceptions about causes and risk factors

c) How important do you think colposcopy is for cervical cancer prevention?		- Lack of awareness about screening availability and process
a) Please describe your overall experience with the colposcopy procedure. b) How satisfied were you with the service provided? c) What are your thoughts or beliefs about colposcopy and cervical cancer screening? d) Do you have any concerns about the procedure or its importance?	Experiences with Screening Process	- Varied levels of pre-screening education/information - Physical discomfort during procedure - Positive and negative interactions with healthcare workers - Satisfaction with quick results
	Perceptions of Healthcare System	- Mistrust and scepticism about "free" services - Perceptions of long wait times and staff shortages - Desire for improved screening facilities and staff training
a) What specific actions or changes would encourage you to attend a colposcopy screening in the near future? b) What would encourage you to attend a colposcopy screening? c) What factors would make you more likely to participate in future screenings?	Motivations for Screening	- Health consciousness and desire to know status - Recommendations from trusted sources (e.g. healthcare workers, religious leaders) - Free screening opportunities
a) What obstacles do you think prevent women from participating in colposcopy screenings?	Barriers to Screening	- Fear and anxiety (of procedure, results, stigma) - Lack of symptoms/perceived low risk

b) Do you have any concerns about healthcare providers involved in colposcopy services?		- Logistical challenges (transportation, time, cost) - Cultural and religious beliefs - Privacy and confidentiality concerns (especially for HIV+ women)
	Follow-up and Continuity of Care	- Inconsistent invitation for repeat screening - Challenges returning for follow-up appointments
	HIV Status and Screening	- Intersection of HIV status and cervical cancer risk perception - Concerns about HIV status disclosure through early screening age
	Rural Context Challenges	- Limited access to screening facilities - Lack of awareness in village communities - Need for mobile/outreach screening services
a) How do you think the colposcopy screening process could be improved? b) What changes would make the screening more accessible or acceptable to women? c) Do you have any suggestions for improving the screening	Information and Education Needs	- Desire for more community-based awareness campaigns - Need for culturally appropriate education materials - Importance of addressing misconceptions

venue, staff, or information provided? d) What suggestions do you have to improve communication about colposcopy?		

These themes highlight the complex interplay between individual experiences/perceptions and systemic barriers in influencing cervical cancer screening uptake and effectiveness in rural areas. The findings suggest a need for multilevel interventions addressing both personal and structural factors to improve screening accessibility and utilisation.

4.1.1 Vignette scenarios

Scenarios 1: Imagine Mary, a 30-year-old female from the Ahoada. She has one child who is 7 years old and lives with her mum in Port Harcourt. Mary has been in Port Harcourt for 2 years and is working full-time as a cleaner to earn money for her son's education. Mary feels fit and healthy and has never seen a doctor in Hong Kong. Mary has never had a colposcopy cervical cancer screening.

Questions:

What do you think Mary should do about colposcopy cervical cancer screening? Why do you say that?

Interview questions

Scenarios 2: Imagine Joy, she is a 45-year-old female from the Abua and has been overseas for 10 years. She has two children who are now in their teens. Joy had had a colposcopy but felt so embarrassed about the whole situation that she did not go back.

Joy knows that having regular colposcopy screening is important, however she worries about finding out she may have cancer, and this stops her going back for the screening. She thinks that if it is found out she has cancer she will die, and she cannot send money home for her two children.

4.2 DEMOGRAPHY OF THE PARTICIPANTS

Demographic information provides insights into specific background attributes of an audience, such as their age, race, ethnicity, income, employment status, and marital status (Werner *et al.,* 2014). The first phase of the study, conducted between June and July 2023, involved forty-one in-depth interviews with female service users who were all gathered from Rivers State of Nigeria. Initially, forty-four women agreed to participate, but three were unable to complete the interviews (see appendix 13). Participants ranged in age from 26 to 49 years, with 48.8% (n=20) aged 20-34 and 51.2% (n=21) aged 35-49. The majority (68.3%, n=28) had tertiary education, while 31.7% (n=13) had secondary education. Regarding marital status, 63.4% (n=26) were married, 22% (n=9) unmarried, and 14.6% (n=6) widowed. Employment status varied: 48.8% (n=20) employed, 4.9% (n=2) unemployed, and 46.3% (n=19) self-employed. Christianity was the predominant religion (82.9%, n=34), with the remaining 17.1% (n=7) identifying as Muslim. All participants were anonymised to protect their identities. Table 11 provides a comprehensive record of these demographic details for all 41 participants.

Table 4.2 Percentage record of service users

Characteristics	Number (N)	Percent (%)
Age		
20- 34	20	48.8
35-49	21	51.2
Level of education		
Primary	0	0
Secondary	13	31.7
Tertiary	28	68.3
Marital status		
Married	26	63.4
Unmarried	9	22
Widowed	6	14.6
Occupation		
Employed	20	48.8
Unemployed	2	4.9
Self employed	19	46.3
Religion		
Christian	34	82.9
Muslim	7	17.1

Table 4.3 shows the demographic data of the participants (service users)

Participant number	Pseudo nym	Participant Age	Religion	Ethnicity	Data collection	Marital Status	Level of Education	Occupation	Undergone colposcopy (Yes/No)	HIV Status
1	W1	36	Christian	Ekpeye	IDI	Married	Tertiary	Trader	Yes	Negative
2	W 2	49	Christian	Ekpeye	IDI	Married	Tertiary	Trader	Yes	Negative
3	W 3	28	Christian	Ekpeye	IDI	Unmarried	Tertiary	Unemployed	No	Positive
4	W 4	48	Christian	Ekpeye	IDI	Married	Tertiary	Civil servant	Yes	Positive
5	W 5	26	Christian	Ekpeye	IDI	Unmarried	Tertiary	Civil servant	No	Positive
6	W 6	41	Muslim	Ekpeye	IDI	Married	Tertiary	Trader	Yes	Negative
7	W 7	30	Christian	Ekpeye	IDI	Married	Tertiary	Civil servant	Yes	Negative
8	W 8	43	Christian	Ekpeye	IDI	Married	Tertiary	Trader	Yes	Negative
9	W 9	42	Muslim	Ekpeye	IDI	Widow	Tertiary	Trader	Yes	Positive
10	W 10	38	Muslim	Ekpeye	IDI	Married	Tertiary	Civil servant	Yes	Positive
11	W 11	33	Christian	Ekpeye	IDI	Married	Secondary	Civil servant	Yes	Negative
12	W 12	31	Christian	Ekpeye	IDI	Married	Tertiary	Trader	Yes	Negative
13	W 13	48	Christian	Ekpeye	IDI	Married	Secondary	Civil servant	Yes	Negative
14	W 14	30	Christian	Ekpeye	IDI	Married	Secondary	Trader	No	Negative
15	W 15	49	Christian	Ekpeye	IDI	Widow	Tertiary	Civil servant	Yes	Positive
16	W 16	30	Christian	Ekpeye	IDI	Unmarried	Tertiary	Civil servant	No	Negative
17	W 17	38	Christian	Ekpeye	IDI	Married	Secondary	Civil servant	Yes	Negative
18	W 18	27	Christian	Ekpeye	IDI	Married	Tertiary	Unemployed	No	Positive
19	W 19	26	Christian	Ekpeye	IDI	Unmarried	Secondary	Civil servant	No	Positive
20	W 20	34	Christian	Ekpeye	IDI	Unmarried	Tertiary	Trader	No	Negative
21	W 21	32	Muslim	Ekpeye	IDI	Widow	Tertiary	Civil servant	No	Negative
22	W 22	30	Muslim	Ogba	IDI	Married	Secondary	Civil servant	No	Don’t know
23	W 23	28	Christian	Ekpeye	IDI	Unmarried	Tertiary	Trader	No	Positive
24	W 24	30	Christian	Ekpeye	IDI	Married	Tertiary	Trader	No	Don’t know
25	W 25	33	Muslim	Ekpeye	IDI	Unmarried	Tertiary	Civil servant	No	Negative
26	W 26	38	Christian	Ekpeye	IDI	Married	Secondary	Farmer	Yes	Negative
27	W 27	39	Christian	Ogba	IDI	Married	Secondary	Civil servant	Yes	Negative
28	W 28	34	Christian	Ekpeye	IDI	Unmarried	Secondary	Civil servant	No	Negative
29	W 29	40	Christian	Ekpeye	IDI	Married	Tertiary	Trader	No	Negative
30	W 30	30	Christian	Ekpeye	IDI	Married	Tertiary	Civil servant	No	Negative
31	W 31	41	Christian	Ekpeye	IDI	Widow	Tertiary	Civil servant	No	Negative
32	W 32	30	Christian	Ikwerre	IDI	Married	Secondary	Farmer	No	Negative
33	W 33	30	Christian	Ikwerre	IDI	Married	Secondary	Trader	Yes	Positive
34	W 34	37	Christian	Ekpeye	IDI	Widow	Tertiary	Civil servant	No	Don’t know
35	W 35	32	Christian	Ekpeye	IDI	Married	Secondary	Civil servant	Yes	Negative
36	W 36	28	Christian	Ekpeye	IDI	Unmarried	Tertiary	Trader	No	Positive

37	W 37	39	Christian	Ekpeye	IDI	Married	Secondary	Civil servant	No	Negative
38	W 38	35	Christian	Ekpeye	IDI	Widow	Tertiary	Trader	No	Negative
39	W 39	44	Muslim	Abua	IDI	Married	Tertiary	Trader	No	Negative
40	W 40	40	Christian	Ekpeye	IDI	Married	Tertiary	Trader	No	Negative
41	W 41	40	Christian	Ekpeye	IDI	Married	Tertiary	Civil servant	No	Negative

4.2.1 Relationship of the participants with the researcher

The service users were not known to me prior the interview sessions with them. This helped the collection of the data without any feeling of sharing their medical secrets with a known individual. Although there were scepticisms about the safety of their information, but a reassurance over the safety of their information helped the service users share their thoughts on colposcopy cancer screening services.

4.2.3 Reflexivity and the interview process

I had a good relationship with a few of the women who were interviewed. The majority of these women, who are market women, were seen in the marketplaces, where they seek to provide for themselves and their families. This meant that the majority of the interview sessions took place during the hottest part of the day, when the women occasionally found themselves in a setting that was less suitable to being interviewed.

First and foremost, I needed to establish a connection with them by my physical appearance, giving the impression that I was a native and not an alien to their environments. It was essential to prioritize this in order to pay less attention to the cultural differences that might exist in such an atmosphere. Nevertheless, it was essential to create the appearance of a health expert who had come with assistance, rather than merely attempting to elicit or gather data from them. This was accomplished by clothing in a manner that was considered to be significantly formal and immaculate. Additionally, I had a difficult time discussing sensitive problems with some of the women since they were sometimes reluctant to talk about their experiences with the colposcopy screening. This was because there were private matters that needed to be discussed. However, reassurances of the purpose of the study, such as helping more women assess and access the screening exercise, and research purpose, helped with being able to elicit necessary information for the study.

4.3 REPORTING OF THE FINDINGS IN RELATION TO THE EMERGED THEMES

The findings are organised according to the following major themes:

1. Knowledge and Awareness
2. Motivations for Screening
3. Barriers to Screening
4. Experiences with Screening Process
5. Follow-up and Continuity of Care
6. Perceptions of Healthcare System
7. Information and Education Needs
8. HIV Status and Screening
9. Rural Context Challenges

Each theme is explored in detail, with relevant subthemes and illustrative quotes from participants to provide a rich, nuanced understanding of women's perspectives and experiences.

4.3.1 Knowledge and Awareness

A critical theme that emerged from the interviews was the varying levels of knowledge and awareness about cervical cancer and colposcopy screening among the women. The analysis revealed that majority of the women (both those that have undergone the screening and those yet to) showed poor knowledge and awareness about cervical cancer and colposcopy screening method. However, few of them especially women that have undergone the screening presented good knowledge and awareness. This theme encompasses several subthemes, including limited understanding of cervical cancer and colposcopy screening, misconceptions about causes and risk factors, and lack of awareness about screening availability and process.

4.3.1.1 Limited Understanding of Cervical Cancer and Screening

Many women demonstrated a limited understanding of cervical cancer and the purpose of screening. When asked about their knowledge of cervical cancer, responses ranged from complete lack of awareness to vague, often inaccurate descriptions. For instance, **W20** stated:

"It is a health issue that is caused by what you eat, someone can develop sickness. I heard about it on WhatsApp, someone posted it on their status, but it has been long."

This response illustrates a common misconception linking cervical cancer primarily to dietary factors, as well as the role of social media in disseminating health information, albeit sometimes inaccurately.

Another participant, **W24**, admitted to having no knowledge about cervical cancer:

"I don't know anything about it, I feel is something that grows inside the body."

This lack of basic understanding was prevalent among many interviewees, highlighting a significant gap in health education and awareness in these rural communities.

Some women had heard of cervical cancer but could not provide any specific information about it. **W10** shared:

"I have heard about it but don't know much about it."

This response was echoed by several other women, indicating that while there may be some general awareness of the term "cervical cancer," detailed knowledge is often lacking.

The analysis of the transcript also revealed that some of the women who have undergone the screening demonstrated good knowledge and understanding of cervical cancer and colposcopy screening method. A participant **W1** who has undergone colposcopy screening responded when asked about cervical cancer and colposcopy screening procedure:

"Yes, I have heard, I have even done cervical cancer screening, it is an infection when a lady has more than one sexual partner, I lay down and they used something like tube inside my vagina, then I was ovulating, and the result was negative"

4.3.1.2 Misconceptions about Causes and Risk Factors

Among those who attempted to describe cervical cancer, there were numerous misconceptions about its causes and risk factors. These misunderstandings could potentially influence women's perceived susceptibility to the disease and their attitudes towards screening.

One prevalent misconception was the belief that cervical cancer is directly linked to promiscuity. **W25** explained:

"I don't know much but what I know is that is cancer that happen to women when they sleep with so many men."

This belief could lead to stigmatization and reluctance to seek screening due to fear of being perceived as promiscuous.

Another misconception related to personal hygiene practices. **W13** shared advice she had received:

"They told us not to use soap to wash our vagina; they said we shouldn't wash at all that we should wash only the surface. They said we should not put our fingers and wash, but I do, I will try not to put my hand but am not comfortable."

While genital hygiene is important, this advice reflects a misunderstanding of cervical cancer causes and prevention methods.

Some women believed that cervical cancer was hereditary and only affected certain families. **W3** expressed:

"I know cervical cancer runs in the family. If your family members do not have cervical cancer, you cannot have cervical cancer."

This belief could lead to a false sense of security among women without a family history of the disease, potentially discouraging them from seeking screening.

4.3,1.3 Lack of Awareness about Screening Availability and Process

Many women were unaware of the availability of cervical cancer screening services or the screening process itself. This lack of awareness was a significant barrier to accessing these potentially life-saving services.

When asked about cervical cancer screening, **W30** responded:

"I haven't heard about it, so I don't know."

This response was common among many participants, indicating a widespread lack of awareness about screening services in their communities.

Even among those who had heard of screening, there was often confusion about the process and who should undergo it. **W16** stated:

"Since it's for sexually active women I won't go for it because I am not eligible."

This misconception about eligibility criteria could prevent women from seeking screening at appropriate times.

Furthermore, many women were unaware that screening services were available for free. A participant **W36** shared:

"Firstly, I don't know is free, I don't know who to ask for that secondly, I don't know where to go for it, thirdly I have not really thought about it to go for it."

This lack of awareness about the availability and accessibility of free screening services represents a significant barrier to utilisation.

4.3.2 Motivations for Screening

The analysis of the transcript revealed what motivated some of the women to undergo the screening. This analysis revealed similar motivations across the participants groups. Despite the challenges and barriers, some women expressed motivations for undergoing cervical cancer screening. These motivations fell into three main subthemes: health consciousness and desire to know status, recommendations from trusted sources, and free screening opportunities.

4.3.2.1 Health Consciousness and Desire to Know Status

Several women expressed a proactive attitude towards their health, viewing screening as an important preventive measure. A participant **W17** stated:

"I look going to the hospital to check myself if am free from any sickness, I like to be on a safe side."

This health-conscious approach was echoed by others who saw value in early detection. **W21** explained her motivation:

"To know my health status, is good to know to avoid falling sick."

These responses indicate that some women understand the importance of preventive health measures and are motivated by the desire to maintain good health.

4.3.2.2 Recommendations from Trusted Sources

For many women, recommendations from trusted individuals played a crucial role in their decision to undergo screening. These trusted sources included healthcare workers, religious leaders, and family members.

A participant **W12** shared how she was motivated to get screened:

"My Pastor's wife who is a health worker asked me to go and do the checkup. She is a woman I love and trust so much, that is how I went."

This example highlights the significant influence that respected community figures, especially those with health backgrounds, can have on health-seeking behaviours.

Similarly, **W8** was motivated by a recommendation from a church member:

"A sister in church motivated me. She motivated me in the church to check my status."

These experiences underscore the importance of community networks and trusted figures in promoting health behaviours.

4.3.2.3 Free Screening Opportunities

The availability of free screening services was a significant motivator for some women, especially given the financial constraints many faces. A participant **W7** expressed:

"Since is free I had to do it, cos I heard is very expensive outside."

This response highlights how removing financial barriers can increase the likelihood of women accessing screening services.

Another participant, **W25**, emphasised the importance of free services:

"If is free I will go and if is not painful."

These statements underscore the importance of not only making screening services free but also widely communicating their free status to encourage uptake.

4.3.3 Barriers to Screening

Despite some motivating factors expressed by the women who had undergone the screening, this analysis also revealed numerous barriers that prevented women from accessing or utilising cervical cancer screening services. These barriers included fear and anxiety, lack of symptoms or perceived low risk, logistical challenges, cultural and religious beliefs, and privacy and confidentiality concerns.

4.3.3.1 Fear and Anxiety

Fear and anxiety emerged as significant psychological barriers to screening. These fears were related to various aspects of the screening process and its potential outcomes.

Fear of the procedure itself was common among participants. A participant **W13** described her initial reaction to screening:

"When I came for the screening, it was scary sha, but later I did it."

This fear of the unknown or discomfort associated with the procedure can deter women from seeking screening.

Anxiety about potential results was another major barrier. Another participant **W20** explained:

"The great reason is fear, if they check and they know they have cervical cancer men and women will stay away from them, they would not like to associate with them. People will get traumatized and go home thinking, they may go to poison the people that transfer the sickness to them, and they will develop evil things, have depression and die at early age without fulfilling their future."

This response highlights the complex web of fears associated with a potential positive diagnosis, including social stigma, psychological distress, and perceived impact on life expectancy.

Some women expressed a preference for not knowing their status. **W31** stated:

"I don't have cancer, I don't want to hear any bad news, I don't want to hear anything that will make me sad."

This avoidance behaviour stemming from fear of bad news can significantly hinder screening uptake.

4.3.3.2 Lack of Symptoms/Perceived Low Risk

Many women believed that screening was unnecessary if they didn't experience any symptoms or if they perceived themselves to be at low risk. This misconception about the purpose of screening as a preventive measure was prevalent.

A participant **W25** explained her reason for not getting screened:

"Because I don't have any symptoms."

When asked how she would know if she had symptoms of cervical cancer, she responded:

"If I am having discomfort down there, it will be one of the reasons that will make go for the screening."

This belief that screening is only necessary when symptoms are present undermines the preventive nature of screening programmes.

Some women expressed a strong conviction that they couldn't have cervical cancer, despite not having been screened. **W32** stated:

"I feel am safe and I don't need it, I feel there is no need for it."

This perceived invulnerability can be a significant barrier to screening uptake.

4.3.3.3 Logistical Challenges

Logistical issues, including transportation difficulties, time constraints, and perceived costs, were frequently cited as barriers to screening.

Transportation was a particular challenge for women in rural areas. A participant **W21** highlighted this issue:

"The location and the transport. The location to the general hospital is far, because I stay in Ughelli. To and fro the hospital is up to 1000 naira."

The distance to screening facilities and associated transportation costs can be prohibitive for many women, especially in rural areas with limited public transportation options.

Time constraints were another logistical barrier. **W11** mentioned long wait times as a deterrent:

"When I came, I had to wait for hours. If you are not patient, you can't do it."

These long wait times can be particularly challenging for women with work or family responsibilities.

Despite the availability of free screening services, some women still perceived cost as a barrier. A participant **W14** expressed scepticism about the free services:

"You know everything in Nigeria is bribe, even if they tell you is free if you go there, they will tell you to bring small change."

This perception of hidden costs can discourage women from seeking screening, even when services are advertised as free.

4.3.3.4 Cultural and Religious Beliefs

Cultural and religious beliefs emerged as potential barriers for some women. While not universally expressed, these beliefs could significantly influence attitudes towards screening.

A participant **W29** alluded to superstitious beliefs in her community:

"Most people believe in witches and wizard, and they hardly believe in medicine. Some others believe in traditional medicine than medical care."

Another participant **W13** also expressed same belief:

"*Some people believe in witches and wizard and hardly go to hospital when they are sick. While others believe in herbal medicine. I personally believe in green leaves they* *help cure our sickness. Even if I use herbs, I must go for a medical checkup. For me I use herbs for malaria, but I must run test before treating it.*"

These traditional beliefs can sometimes conflict with modern medical practices, potentially discouraging women from seeking screening.

Religious beliefs were also mentioned as potential barriers. **W29** stated:

"Firstly, I want to be religious about it, I don't want to put my mind on it."

While not elaborating further, this statement suggests that some women may view seeking medical screening as conflicting with their religious beliefs or as a lack of faith.

4.3.3.5 Privacy and Confidentiality Concerns

Concerns about privacy and confidentiality, particularly for women living with HIV, emerged as a significant barrier to screening. These concerns were often related to fears of stigma and discrimination.

A HIV-positive participant **W5** explained her reluctance to get screened:

"Another reason is because I am positive to HIV, the age for screening is reduced for people with the virus. If I go tell they will say am too small to be screened and people will know my status. I don't want that embarrassment."

This fear of inadvertent disclosure of HIV status through early screening eligibility highlights the complex intersections between HIV status and cervical cancer screening.

Another participant, **W23**, expressed similar concerns:

"If I go, they will say am too small to be screened and people will know my status. I don't want that embarrassment."

These responses underscore the need for screening programmes to address privacy concerns and ensure confidentiality, particularly for women living with HIV.

4.3.4 Experiences with Screening Process

For women who had undergone cervical cancer screening, their experiences varied widely. This theme explores the subthemes of pre-screening education and information, physical discomfort during the procedure, interactions with healthcare workers, and satisfaction with quick results.

4.3.4.1 Pre-screening Education and Information

The level and quality of pre-screening education and information provided to women varied significantly. Some women reported receiving comprehensive information, while others felt they were inadequately informed about the procedure.

A participant **W6** who had a positive experience shared:

"They explained to me that they will do it though vaginal and told me to pull off my clothes."

However, this level of explanation was not universal. **W11** reported a lack of information:

"They did not explain anything to me."

This variation in pre-screening education could significantly impact women's understanding of the procedure and their overall screening experience.

4.3.4.2 Physical Discomfort During Procedure

Many women who underwent screening reported some level of physical discomfort during the procedure. The degree of discomfort varied, with some describing it as mildly uncomfortable while others found it painful.

A participant **W7** described her experience:

"It was okay but painful."

Another participant, **W8** shared a more detailed account:

"*When I came for the screening, it was scary sha, but later I did it, but after that day, I think I was feverish, maybe the doctor, the instrument they used for me."*

These experiences of discomfort or pain could potentially deter women from returning for future screenings or from recommending the procedure to others.

4.3.4.3 Interactions with Healthcare Workers

Women's interactions with healthcare workers during the screening process played a crucial role in shaping their overall experience. Both positive and negative interactions were reported.

W9 shared a positive experience:

"The nurses are very kind; they were jovial they were laughing with us. She explained everything to us, so I will say the health workers are good they are not harsh. They are doing their job."

This kind of positive interaction can help put women at ease and create a more comfortable screening experience.

However, not all interactions were positive. A participant **W11** noted:

"Some of them shout on patients, but when they calm down the patients will be happier and understand."

These negative interactions can create a stressful environment and potentially discourage women from returning for future screenings.

4.3.4.4 Satisfaction with Quick Results

Many women expressed satisfaction with receiving quick results from their screening. This immediate feedback was often cited as a positive aspect of the screening experience.

A participant **W10** shared her experience:

"I was very happy because everything was fine, the HIV, the cervical cancer screening, everything was fine, so I was happy, so I was satisfied."

The ability to receive immediate results appeared to reduce anxiety and increase overall satisfaction with the screening process.

4.3.5 Follow-up and Continuity of Care

The theme of follow-up and continuity of care emerged as an important aspect of the cervical cancer screening process. This theme includes subthemes related to inconsistent invitation for repeat screening and challenges in returning for follow-up appointments.

4.3.5.1 Inconsistent Invitation for Repeat Screening

There appeared to be inconsistency in the way women were invited for repeat screenings. While some reported being given clear instructions for follow-up, others received no information about future screenings.

W6 who had a positive experience shared:

"They gave me a date to come back after one year or six months. They gave me a card that I will come back for another screening."

However, when asked if she was contacted for the follow-up screening, she responded:

"No, she didn't."

This inconsistency in follow-up invitations could lead to missed opportunities for regular screening and early detection.

4.3.5.2 Challenges Returning for Follow-up Appointments

For women who were invited for follow-up screenings, various challenges prevented them from returning. These challenges often mirrored the initial barriers to screening, including logistical issues and competing priorities.

A participant **W12** explained her difficulty in returning for a follow-up:

"Yes, I actually went there, and they told me those people did not come that very day. I didn't have transport to Abua so I didn't go back there."

This response highlights how transportation challenges can hinder follow-up care, even when women are willing to return for screening.

Another participant, **W8**, shared her hesitation about returning for follow-up screening:

"(laughs) haa, I don't know o, I don't think I will go again."

When asked why, she explained:

"The pains I went through the 1st time. And the fever."

This response underscores how negative experiences during initial screenings can discourage women from returning for follow-up care, potentially compromising the effectiveness of screening programmes.

4.3.6 Perceptions of Healthcare System

Women's perceptions of the healthcare system emerged as a significant theme influencing their attitudes towards cervical cancer screening. This theme encompasses subthemes related to mistrust and scepticism about "free" services, perceptions of long wait times and staff shortages, and desires for improved screening facilities and staff training.

4.3.6.1 Mistrust and Scepticism about "Free" Services

Despite the availability of free screening services, many women expressed scepticism about whether these services were truly free. This mistrust could deter women from seeking screening, even when financial barriers are ostensibly removed.

A participant **W32** voiced her suspicion:

"You know everything in Nigeria is bribe, even if they tell you is free if you go there, they will tell you to bring small change."

This sentiment was echoed by another participant **W35** who shared her experience with other health services:

"I have gone for immunization, and they asked me to pay money or find them small change. If you don't give them small money in appreciation they won't attend to you on time."

These perceptions of hidden costs or expectations of informal payments can significantly undermine efforts to provide accessible screening services.

4.3.6.2 Perceptions of Long Wait Times and Staff Shortages

Many women perceived the healthcare system as overburdened, with long wait times and insufficient staff to meet demand. These perceptions could discourage women from seeking screening services.

A participant **W37** described her experience:

"The first time I came I wasn't attended, they can't do the mixture for me alone, I was told to come in two weeks' time when there are more women. Some women will go and never come back. Another thing is that they are not quick to attend to people, when I came, I had to wait for hours. If you are not patient, you can't do it."

This experience highlights how systemic issues like staff shortages and inefficient processes can create barriers to screening access.

Another participant **W39** also noted the issue of staff shortages:

"When they came to the church, they were only two nurses and we were many, so they oriented us and we did it ourselves, but I know if it were the hospital they would have done it themselves."

This response raises concerns about the quality and thoroughness of screening when healthcare workers are overwhelmed.

4.3.6.3 Desire for Improved Screening Facilities and Staff Training

Many women expressed a desire for improvements in screening facilities and staff training to enhance the quality of care and increase confidence in the screening process.

A participant **W20** suggested:

"I think more lectures on cervical cancer is needed, it is good to tell them the importance of going for the screening."

This response highlights the need for ongoing training and education for healthcare workers to improve their ability to communicate effectively with patients about cervical cancer and screening.

Another participant, **W9**, emphasised the need for more healthcare workers:

"I think they need more hands to do the work, like the day I went I noticed she was the only nurse attending to me and other patients, they do not have enough nurses and doctors. So, I feel in the process of waiting, some people can change their minds. So, I feel they need more hands."

These suggestions for improvement indicate that women are aware of the limitations in the current healthcare system and desire better quality care.

4.3.7 Information and Education Needs

A recurring theme throughout the interviews was the need for more comprehensive information and education about cervical cancer and screening. This theme includes subthemes related to the desire for more community-based awareness campaigns, the need for culturally appropriate education materials, and the importance of addressing misconceptions.

4.3.7.1 Desire for Community-Based Awareness Campaigns

Many women emphasised the need for more community-based awareness campaigns to increase knowledge about cervical cancer and screening services.

A participant **W28** suggested:

"They can do sensitization, mass media campaigns, talk to women and create awareness about cervical cancer screening. They can do road show in the streets and nearby communities were women aggregate."

This suggestion highlights the potential effectiveness of bringing information directly to communities, rather than relying solely on healthcare facilities to disseminate information.

Another woman, **W21**, proposed using existing community structures:

"I think the lecture should be done in different churches that are where they will listen more, in different health centres, hospitals, even pregnant women they can be lectured when they come for antenatal. They can also use town criers to announce to communities."

These suggestions demonstrate the importance of leveraging trusted community channels to spread awareness about cervical cancer screening

4.3.7.2 Need for Culturally Appropriate Education Materials

The interviews revealed a need for education materials that are culturally appropriate and easily understood by women in rural communities.

A participant **W4** highlighted the importance of language in health education:

"Because of their language, I didn't understand the process well, they spoke fluent English, and it was difficult for me to understand."

When asked what language would have been more effective, she responded:

"Maybe Pidgin English or Akwa Ibom local dialect."

This response underscores the importance of providing health information in local languages and dialects to ensure comprehension and relevance.

4.3.7.3 Importance of Addressing Misconceptions

Many women held misconceptions about cervical cancer and screening, highlighting the need for education efforts to specifically address and correct these misunderstandings.

A participant **W41** shared a common misconception:

"It is for the women, to check for the ovaries of the vagina of a woman. That's what I can remember, so they don't have growth on the cervix."

Education efforts need to clearly explain the nature of cervical cancer, its causes, and the purpose of screening to correct such misconceptions.

Another participant, **W23**, held the belief that cervical cancer was solely hereditary:

"I know cervical cancer runs in the family. If your family members do not have cervical cancer, you cannot have cervical cancer."

Addressing these misconceptions is crucial for helping women accurately assess their risk and understand the importance of regular screening.

4.3.8 HIV Status and Screening

The intersection of HIV status and cervical cancer screening emerged as a significant theme, particularly in how it influenced women's perceptions of risk and their willingness to undergo screening. This theme includes subthemes related to the intersection of HIV status and cervical cancer risk perception, and concerns about HIV status disclosure through early screening age.

4.3.8.1 Intersection of HIV Status and Cervical Cancer Risk Perception

Women's understanding of their HIV status appeared to influence their perception of cervical cancer risk and their attitudes towards screening. However, this influence varied among participants.

A HIV-positive participant **W9** demonstrated awareness of her increased risk:

"When I went for my HIV clinic to take my drugs, I was told that female from 18 years and above (60 years) that government has mandated that all must go for the testing that is compulsory that is how I went."

This response indicates that some HIV-positive women are aware of their increased risk and the importance of regular screening.

However, not all HIV-positive women showed this level of awareness. Another HIV-positive participant **W19** stated:

"I don't want to go because I know am not affected and I don't know about it."

This response highlights the need for targeted education about the increased risk of cervical cancer among HIV-positive women.

4.3.8.2 Concerns about HIV Status Disclosure through Early Screening Age

A significant concern among some HIV-positive women was the fear that seeking cervical cancer screening at a younger age might inadvertently disclose their HIV status.

A HIV-positive **W23** explained:

"Another reason is because I am positive to HIV, the age for screening is reduced for people with the virus. If I go tell they will say am too small to be screened and people will know my status. I don't want that embarrassment."

This fear of status disclosure through screening eligibility represents a unique barrier for HIV-positive women and highlights the need for confidential, integrated HIV and cervical cancer services.

Another participant, **W5**, expressed similar concerns:

"If I go for the screening everybody will now know I have the HIV sickness, no I don't want to go. People that don't have the virus their age for the screening is 30 years am just 28 years, if I go they will all know I have it. People will start avoiding me, am not going ooo."

These responses underscore the complex interplay between HIV status, cervical cancer screening, and fears of stigma and discrimination.

4.3.9 Rural Context Challenges

The rural context in which these women lived presented unique challenges to accessing and utilising cervical cancer screening services. This affected not only women that are yet to be screened but also those that have undergone the screening as revealed from the analysis. This theme includes subthemes related to limited access to screening facilities, lack of awareness in village communities, and the need for mobile/outreach screening services.

4.3.9.1 Limited Access to Screening Facilities

Many women cited the distance to screening facilities as a significant barrier, particularly given the limitations of rural transportation infrastructure.

A participant **W35** highlighted this challenge:

"The location and the transport. The location to the general hospital is far, because I stay in Ughelli. Through and fro the hospital is up to #1000."

This response illustrates how the combination of distance and transportation costs can make accessing screening services prohibitively difficult for many rural women.

Another participant, **W12**, shared her experience:

"Yes, I actually went there, and they told me those people did not come that very day. I didn't have transport to Abua so I didn't go back there."

This example shows how even when women are willing to seek screening, logistical challenges can prevent them from accessing services.

4.3.9.2 Lack of Awareness in Village Communities

Several participants noted that awareness about cervical cancer and screening was particularly low in village communities.

W12 suggested:

"It is good to go the villages to create more awareness, those women there are not aware of this cervical cancer screening."

This response highlights the disparity in health information between more urban areas and rural villages.

Another participant, **W27**, stated simply:

"The news has not come to this community; we are not aware of it."

These responses underscore the need for targeted awareness campaigns in rural and village communities.

4.3.9.3 Need for Mobile/Outreach Screening Services

Given the challenges of accessing centralized screening facilities, many women expressed a desire for mobile or outreach screening services that could reach rural communities directly.

A participant **W35** suggested:

"So, if they can fix a day, inform the village heads, get a venue in the community, the town crier goes round to inform people and sound alarm to tell the people of the importance, the people come to get advice."

This suggestion demonstrates the potential effectiveness of bringing screening services directly to rural communities, leveraging local leadership and communication channels.

Another woman, **W13**, shared her experience with a community-based screening initiative:

"They came to our church for the screening and asked women to come and do it and they did it."

This example illustrates how community-based screening initiatives can increase access and uptake in rural areas.

4.4 SUMMARY OF CHAPTER

The findings presented in this chapter provide a comprehensive overview of the complex factors influencing women's experiences, perceptions, and utilisation of cervical cancer screening services in rural areas. The interplay between individual knowledge and attitudes, systemic healthcare challenges, and the unique context of rural communities creates a multifaceted landscape that both facilitates and hinders screening uptake.

Key issues that emerged include the widespread lack of accurate knowledge about cervical cancer and screening, the significant impact of fear and misconceptions on screening behaviours, the logistical challenges posed by rural contexts, and the complex intersection of HIV status with cervical cancer screening. The findings also highlight the crucial role of healthcare worker interactions, the impact of cultural and religious beliefs, and the pressing need for more comprehensive, culturally appropriate health education and awareness campaigns.

These findings underscore the need for a multifaceted approach to improving cervical cancer screening uptake in rural areas. Such an approach should address not only individual-level factors through education and awareness campaigns but also systemic issues such as healthcare access, quality of care, and the integration of HIV and cervical cancer services. Moreover, the unique challenges posed by rural contexts call for innovative solutions, such as mobile screening services and community-based initiatives, to bridge the gap in access to screening services.

The insights gained from these interviews provide a foundation for developing more effective, context-specific strategies to enhance the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural areas. By addressing the barriers and leveraging the facilitators identified in this study, there is potential to significantly improve cervical cancer prevention and control efforts in these underserved communities.

CHAPTER FIVE

FINDINGS FROM FOCUS GROUPS DISCUSSION WITH HEALTHCARE PROFESSIONALS

This chapter presents the findings from the focus group discussion conducted with healthcare professionals regarding colposcopy cervical cancer screening services in rural areas. It also highlighted participant demographics, relationship of the participants with the researcher, reflexivity and the interview process.

5.1 INTRODUCTION

The analysis of the data revealed several key themes that provide insight into the complex interplay between the lived experiences and perceptions of healthcare professionals, systemic barriers, and their influence on the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural settings.

The findings are organised according to the following major themes:

1. Healthcare Provider Experiences and Perspectives

2. Healthcare System Limitations

3. Sociocultural Barriers

4. Geographical and Logistical Challenges

5. Patient-related Factors

6. Healthcare Provider Training and Support

7. Community Engagement and Education

8. Health System Improvements

9. Resource Allocation and Support

Each theme is explored in detail, supported by relevant quotes from the focus group participants. This presentation of findings aims to provide a comprehensive understanding of the challenges and opportunities in delivering colposcopy cervical cancer screening services in rural settings.

5.2 PARTICIPANT DEMOGRAPHICS

Demographic information provides insights into specific background attributes of an audience, such as their age, race, ethnicity, income, employment status, and marital status (Werner *et al.,* 2014). The health professionals summed together was a total of 18 respondents and were all gathered from Rivers State of Nigeria for the focused-group discussions. They are also representative of health professionals who have been trained in offering colposcopy services, and work in health facilities in Rivers State.

As had been discussed concerning the inclusion and exclusion criteria, attention was paid to ensuring the right persons for the study. However, amongst other things, the service providers were health professionals who had been trained to provide colposcopy services, and who had provided or participated in colposcopy screening exercises

Table 5.1 Demographic data of participants (service providers).

Participant number	Ethnicity	Age	Study	Post	Occupation
1	Ikwerre	42	FGD	Gynaecologist	Medical Doctor
2	Ekpeye	50	FGD	Medical officer	Medical Doctor
3	Ogoni	53	FGD	Gynaecologist	Medical Doctor
4	Ogba	34	FGD	Medical officer	Medical Doctor
5	Ijew	38	FGD	Medical officer	Medical Doctor
6	Ikwerre	38	FGD	Medical officer	Medical Doctor
7	Ikwerre	35	FGD	Medical officer	Medical Doctor
8	Ogoni	55	FGD	Gynaecologist	Medical Doctor
9	Ikwerre	37	FGD	Medical officer	Medical Doctor
10	Ijew	40	FGD	Medical officer	Medical Doctor
11	Ijew	41	FGD	Gynaecologist	Medical Doctor
12	Ikwerre	39	FGD	Gynaecologist	Medical Doctor
13	Ikwerre	33	FGD	Medical officer	Medical Doctor
14	Ogoni	36	FGD	Medical officer	Medical Doctor
15	Ikwerre	40	FGD	Gynaecologist	Medical Doctor
16	Ekpeye	42	FGD	Medical officer	Medical Doctor
17	Ekpeye	46	FGD	Medical officer	Medical Doctor
18	Ogba	35	FGD	Medical officer	Medical Doctor

5.2.1 Relationship of the health professionals with the researcher

The health professionals were doctors recruited from the Rivers State hospital management board. Although some of the health professionals were former colleagues, the researcher had no prior relationship with most of the colposcopy health professionals recruited for the study.

5.2.2 Reflexivity and the interview process

Having focused group discussion with the health professionals, was supposed to be a simple assignment for me on account of the fact that I am also a member of the health professional community. However, the fact of the matter is that being a health professional makes it an already challenging responsibility, particularly in Nigeria, where health workers are overburdened with obligations on a daily basis. A number of appointments were scheduled, and the majority of them had to be rescheduled in order to accommodate other individuals who had or had not taken permission to be absent. In the light of the difficulties gathering the health professionals all at once for a focused group discussion, I had to re-strategize. This led me to holding individual interviews with the health professionals who were unable to participate in the focus group discussion (FGD) due to circumstances beyond my and their controls. The focused group questions were then sent to them each, who then provided recorded answers for each of the questions asked. As a result, I at the end got to have more answers to each question, as against a collective FGD session which would have only lasted the maximum of 40 minutes.

5.3 REPORTING OF THE FINDINGS IN RELATION TO THE EMERGED THEMES

Based on my analysis of the focus group discussion with service providers, here are the key themes and subthemes that emerge related to the research question:

Table 5.2 Emerging themes and subthemes from phase 2 data collection

Key questions	Themes	Subthemes
What are your experiences and beliefs on colposcopy cervical cancer screening among women in rural area?	-Healthcare Provider Experiences and Perspectives	- Importance of colposcopy for early detection - Challenges in patient education and consent - Variability in patient acceptance and uptake - Emotional impact on providers
What limitations do you think can affect your practice or role in providing effective colposcopy screening in your settings?	-Healthcare System Limitations	- Lack of equipment and resources - Inadequate facilities and infrastructure - Manpower shortages and skill gaps - Inconsistent follow-up systems
In your opinion, what do you think are the possible barriers affecting the utilisation of colposcopy screening services among women in your settings?	-Sociocultural Barriers	- Low awareness and misconceptions about cervical cancer - Cultural and religious beliefs - Language barriers - Stigma and privacy concerns
	-Geographical and Logistical Challenges	-Transportation difficulties - Distance to healthcare facilities - Security concerns in rural areas

	-Patient-related Factors	- Fear and reluctance to undergo screening - Late presentation for care - Competing priorities (e.g., farming, market days)
What can be done to improve your practices and utilisation of colposcopy screening in rural area?	-Healthcare Provider Training and Support	- Need for continuous education and skill development - Importance of motivation and incentives for providers
	-Community Engagement and Education	- Importance of awareness campaigns and health talks - Need for culturally appropriate communication strategies - Potential role of community health workers
	-Health System Improvements	- Need for national screening programmes - Importance of dedicated colposcopy units and staff - Integration with other reproductive health services
	Resource Allocation and Support	- Need for government investment in facilities and equipment - Importance of sustainable supply chains for materials

		- Potential role of donor agencies and partnerships

These themes and subthemes reflect the complex interplay between healthcare provider experiences, patient perceptions, and systemic barriers that influence the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural areas.

5.3.1 Healthcare provider experiences and perspectives

The healthcare providers' experiences and perspectives formed a crucial theme in understanding the challenges and opportunities in providing colposcopy cervical cancer screening services in rural areas. This theme encompasses several subthemes, including the importance of colposcopy for early detection, challenges in patient education and consent, variability in patient acceptance and uptake, and the emotional impact on providers.

5.3.1.1 Importance of Colposcopy for Early Detection

Healthcare providers consistently emphasised the critical role of colposcopy in the early detection of cervical cancer. They viewed it as an essential tool in their efforts to reduce the morbidity and mortality associated with the disease.

A respondent **HP3** with extensive experience in obstetrics and gynaecology stated:

> *"Cervical cancer is about the only malignancy that has a precursor premalignant stage that, if searched for and eradicated, can reduce cervical cancer incidence, morbidity and mortality from the disease."*

This statement underscores the unique opportunity that cervical cancer screening, particularly colposcopy, presents in cancer prevention. The same doctor further elaborated on the practical advantages of colposcopy:

> *"I believe widespread use of colposcopy in the outpatient is an important tool in the management of those patients whose transformation zones are not entirely visualized in the see and treat programme. It is an outpatient procedure, doesn't require anaesthesia, no prior laboratory investigations."*

These comments highlight the potential of colposcopy as a relatively simple yet effective tool in cervical cancer prevention, particularly in resource-limited settings.

Another participant recognised that some women have a proactive attitude toward seeking health services. **HP8** stated:

"*My experience is that the rural women are ready to accept any form of management you offer to them to make them free from cervical cancer. Colposcopy is therefore readily accepted by them as a diagnostic procedure*."

This suggests providers see intrinsic health motivation as what makes women take up the screening.

5.3.1.2 Challenges in Patient Education and Consent

While healthcare providers recognised the importance of colposcopy, they also acknowledged significant challenges in educating patients about the procedure and obtaining informed consent. These challenges were often rooted in low awareness and misconceptions about cervical cancer among rural women.

A participant **HP6** shared his experience:

"Colposcopy is a very important procedure especially in the early detection of cervical cancer. Although in the rural areas, one of the major challenges in convincing people, for them to agree giving consent. But I think with constant advocacy and public health enlightened and talks that these women get from the health centres presenting themselves for colposcopy wasn't a difficult thing."

This statement highlights the initial reluctance of patients but also suggests that persistent education efforts can overcome these barriers. However, another doctor **HP9** pointed out the ongoing challenges:

"Most of the people in the rural areas are not aware of cervical cancer, neither are they are aware of a screening method; they really do not have any belief system concerning it. However, when you tell them about a condition that can lead to cancer, of course their attitude is like every typical African person and is usually a form of response of 'is not my portion'."

This response indicates that even when information is provided, cultural beliefs and attitudes can influence how it is received and acted upon.

5.3.1.3 Variability in Patient Acceptance and Uptake

Healthcare providers reported significant variability in patient acceptance and uptake of colposcopy services. While some women were receptive to screening after education, others remained reluctant or resistant.

A female doctor **HP4** shared a particularly challenging experience during a community outreach programme:

> *"I was manning the cervical cancer screening, so I saw women going to other places and none came to me. So, I asked the nurses why they are not sensitizing them upon giving a talk on it. I had to remove my gloves and beg the women to come for cervical cancer screening, some promised to come after receiving other health care, but they never came. They said 'so you want me to open my legs for you to check? Who told you I have cancer? What is cancer? I don't have anything like that please, please I don't need it'"*

This account vividly illustrates the challenges healthcare providers face in promoting cervical cancer screening, even in the context of broader health services. The doctor's experience of having to "beg" women to undergo screening underscores the depth of resistance they sometimes encounter.

However, not all experiences were negative. Another male doctor **HP15** reported:

> *"My experience is that the rural women are ready to accept any form of management you offer to them to make them free from cervical cancer. Colposcopy is therefore readily accepted by them as a diagnostic procedure."*

Another participant also noted that effective communication and education about the procedure and its benefits make women more receptive to screening. According to **HP2:**

"In my experience, some of the women undertook the screening because of proper and clear explanations specific concerns and questions to overcome hesitancy and misconceptions".

This contrasting experience suggests that patient acceptance can vary significantly, possibly depending on factors such as prior education, community attitudes, and the approach of individual healthcare providers.

5.3.1.4 Emotional Impact on Providers

The challenges of providing colposcopy services in rural areas often had a significant emotional impact on healthcare providers. This was particularly evident in cases where they encountered advanced cases of cervical cancer that could have been prevented through early screening.

A male doctor **HP8** expressed his feelings of helplessness:

> *"My experiences have been that of being overwhelmed by the measure of helplessness I see in the women especially those who are diagnosed with cervical lesions."*

This statement reveals the emotional toll that late-stage diagnoses can have on healthcare providers, underscoring the importance of early screening not just for patients but also for the well-being of medical professionals.

The same doctor also highlighted the broader societal impact of cervical cancer:

> *"I believe that colposcopy will help these women live more productive healthier lives as the nip in the bud of indicated cervical lesions will in the long run prevent the cost burden and expenditure for cervical cancer that the women living in the remote areas cannot afford to pay. Also, the reduction in mortality keeps the women alive for their children and others who depend on them for sustenance."*

This perspective illustrates how healthcare providers view their role in cervical cancer prevention not just in medical terms, but also in terms of broader social and economic impacts on families and communities.

5.3.2 Healthcare system limitations

Healthcare providers identified numerous systemic limitations that hindered their ability to provide effective colposcopy services in rural areas. These limitations included lack of equipment and resources, inadequate facilities and infrastructure, manpower shortages and skill gaps, and inconsistent follow-up systems.

5.3.2.1 Lack of Equipment and Resources

A recurring theme in the focus group discussion was the shortage of necessary equipment and resources for conducting colposcopy screenings. This shortage was often cited as a major barrier to providing consistent and high-quality screening services.

A male doctor **HP5** highlighted this issue:

> *"Colposcopes are not provided in our services. Like I said earlier the device was made available to our hospital in the last one year plus by a donor agency that I have mentioned. The brand provided for us, like I said it was provided by a donor and what they brought, that is what we used. It is not very user friendly; it has internet connections. When the internet services are erratic, we cannot use it."*

This statement reveals not only the scarcity of colposcopy equipment but also the challenges associated with the equipment that is available. The reliance on donor-provided equipment and the technical difficulties associated with its use underscore the need for more sustainable and appropriate technology solutions.

Another healthcare provider **HP2** emphasised the impact of resource shortages on service continuity:

"Supply chain and logistics as the cervical cancer screening is a nonprofit charity venture, when materials and solutions run out it takes a while to replenish. Secondly, because it brings no revenue to the hospital rather takes from it is given low priority in terms of restocking of exhausted materials."

This comment highlights how the non-profit nature of cervical cancer screening services can lead to lower prioritization in resource allocation, potentially resulting in interruptions in service provision.

5.3.2.2 Inadequate Facilities and Infrastructure

Healthcare providers also pointed out that many rural healthcare facilities lack the basic infrastructure necessary for providing effective colposcopy services. This includes issues with electricity supply, water access, and appropriate examination spaces.

A male doctor **HP10** described the challenges:

"Carrying out colposcopy in a facility where there is no light, sometimes of the colposcopy equipment use batteries that need to be charged. Sometimes when you want to use it there is no light, you will have to take the colposcopies to Port Harcourt and charge them and return them to the health facility before it can be used."

This account illustrates how basic infrastructure issues, such as unreliable electricity supply, can significantly hinder the provision of colposcopy services. The need to transport equipment to urban areas for charging represents a substantial logistical challenge and potential barrier to consistent service provision.

The same doctor further elaborated on facility inadequacies:

"Some of the hospitals don't have a couch where you can examine these patients, some of these facilities don't have running water, you can't sterilize anything."

These basic facility shortcomings not only make it difficult to provide colposcopy services but also raise concerns about maintaining proper hygiene and infection control practices.

5.3.2.3 Manpower Shortages and Skill Gaps

A significant challenge identified by healthcare providers was the shortage of trained personnel capable of performing colposcopy and interpreting results. This shortage was often exacerbated by high turnover rates and inadequate training opportunities.

A male doctor **HP1** highlighted this issue:

"One of the major challenges in the rural area is manpower shortage. Women come for screening are never attended to be skilled person is attending to other cases."

This statement underscores how general staffing shortages in rural healthcare facilities can particularly impact specialized services like colposcopy screening.

Another healthcare provider **HP9** emphasised the need for continuous training:

"Most of the health personnel trained for cervical cancer screening are either retired or have relocated. There is need to inculcate training and retraining of personnel to carry out colposcopy."

This comment highlights the ongoing challenge of maintaining a skilled workforce in rural areas, suggesting that initial training is not sufficient without ongoing support and opportunities for skill development.

5.3.2.4 Inconsistent Follow-up Systems

Healthcare providers also noted challenges in ensuring proper follow-up care for women who undergo colposcopy screening, particularly those who require additional testing or treatment.

A male doctor **HP3** explained:

> *"Follow-up, most people screened for colposcopy needs follow up in case there is need for biopsy and treatment. Follow-up after colposcopy in extremely difficult in these rural communities."*

This difficulty in ensuring follow-up care represents a significant gap in the continuum of care for cervical cancer prevention and treatment. It suggests that even when initial screening is successful, the lack of robust follow-up systems can undermine the overall effectiveness of cervical cancer prevention efforts.

5.3.3 Sociocultural barriers

Healthcare providers identified various sociocultural factors that act as barriers to the uptake and effectiveness of colposcopy cervical cancer screening services in rural areas. These include low awareness and misconceptions about cervical cancer, cultural and religious beliefs, language barriers, and stigma and privacy concerns.

5.3.3.1 Low Awareness and Misconceptions about Cervical Cancer

A recurring theme in the focus group discussion was the low level of awareness about cervical cancer among rural women, often accompanied by misconceptions about the disease and its prevention.

A female doctor **HP11** shared her observation:

> *"My experience on colposcopy, cervical cancer screening among women in health facilities in the rural areas is that the awareness is somewhat low but is a good one for early cervical cancer detection and treatment, but the awareness is low."*

This statement highlights the paradox that while colposcopy is recognised by healthcare providers as an effective tool for early detection, this understanding is not widely shared among the target population.

Another healthcare provider **HP6** elaborated on the misconceptions they encounter:

> *"They don't believe there is anything like cancer. Most things that happen is as a result of someone hurting them and not cancer, so it not an easy one."*

This comment reveals how traditional beliefs about the causes of illness can interfere with acceptance of modern medical explanations and interventions.

5.3.3.2 Cultural and Religious Beliefs

Healthcare providers noted that cultural and religious beliefs often play a significant role in shaping attitudes towards cervical cancer screening.

A male doctor **HP2** observed:

> *"Most people believe in witches and wizard, and they hardly believe in medicine. Some others believe in traditional medicine than medical care."*

This statement highlights how traditional belief systems can compete with modern medical approaches, potentially discouraging women from seeking screening services.

Another healthcare provider **HP11** noted the influence of religious beliefs:

> *"Firstly, I want to be religious about it, I don't want to put my mind on it."*

While this comment was attributed to a patient, it reflects a sentiment that healthcare providers often encounter, where religious beliefs are seen as incompatible with or superior to medical interventions.

5.3.3.3 Language Barriers

Language differences between healthcare providers and patients were identified as a significant barrier to effective communication about cervical cancer and screening services.

A male doctor **HP8** explained:

> *"The limitations to effective practice of colposcopy in the rural areas were language barriers especially if the health worker or the doctor is not from that terrain. I think language is a big barrier, a big limitation. Although some of the health workers who are from those places can talk to the women. However, if the doctors can speak the language, you know most people believe in the doctors than any other health personnel."*

This statement highlights not only the practical challenges of communicating across language barriers but also the added complexity when considering the perceived authority of different healthcare roles.

5.3.3.4 Stigma and Privacy Concerns

Healthcare providers reported that stigma associated with gynaecological examinations and concerns about privacy often deterred women from seeking screening services.

A female doctor **HP14** shared her experience:

"They said 'so you want me to open my legs for you to check? Who told you I have cancer? What is cancer? I don't have anything like that please, please I don't need it'"

This vivid account illustrates the discomfort and resistance some women feel towards the intimate nature of cervical examinations.

Another healthcare provider **HP6** highlighted how privacy concerns intersect with HIV status:

"Stigmatization: most HIV patients that are below 30yrs are scared of attending because of fear of stigmatization since the age inclusion criteria for people living with HIV is 25-49yrs whereas for non-HIV individuals is 30-49yrs."

This observation reveals how screening protocols intended to provide more comprehensive care for high-risk groups can inadvertently create barriers due to fear of status disclosure and associated stigma.

5.3.4 Geographical and logistical challenges

Healthcare providers highlighted several geographical and logistical challenges that significantly impact the provision and uptake of colposcopy cervical cancer screening services in rural areas. These challenges include transportation difficulties, distance to healthcare facilities, and security concerns in rural areas.

5.3.4.1 Transportation Difficulties

One of the most frequently mentioned challenges was the difficulty in accessing rural healthcare facilities due to poor transportation infrastructure.

A male doctor **HP7** described the situation:

"The limitations that I experienced were one, transport availability, some of these rural areas are not easily accessible, some don't have good roads, and the hospital facilities are quite far from town. If you decide to go with your private car, you may get stocked particularly, an example when I was going to the health care centre in Abua, some sections of the road were so bad that even with bike you may need to stop and cross on foot and continue your journey."

This vivid description illustrates the significant physical barriers that both healthcare providers and patients face in accessing rural health facilities. The need to use multiple modes of transportation and even walk on foot underscores the challenges in providing consistent healthcare services in these areas.

Another healthcare provider **HP2** emphasised how transportation issues affect patients' ability to access services:

"The transportation cost is a limiting factor and a barrier to women coming from the remote recesses of the local government to seek cervical cancer screening and treatment via colposcopy."

This statement highlights how the financial burden of transportation can be a significant deterrent for women seeking screening services, particularly in economically disadvantaged rural areas.

5.3.4.2 Distance to Healthcare Facilities

Closely related to transportation difficulties is the issue of the physical distance between rural communities and healthcare facilities offering colposcopy services.

A male doctor **HP3** noted:

> *"Another barrier is proximity, some of these health facilities are far away from where people reside. Transportation logistics is also a limitation; most of these women find it difficult coming out because of lack of transportation."*

This observation underscores how the centralization of specialized services like colposcopy in distant healthcare facilities can create significant access barriers for rural women.

Another healthcare provider **HP12** suggested a potential solution:

> *"So, if they can fix a day, inform the village heads, get a venue in the community, the town crier goes round to inform people and sound alarm to tell the people of the importance, the people come to get advice."*

This suggestion of bringing services closer to communities through outreach programmes indicates that healthcare providers are aware of the need for more accessible service delivery models.

5.3.4.3 Security Concerns in Rural Areas

Healthcare providers also highlighted security concerns as a significant challenge in providing services in some rural areas.

A male doctor **HP1** explained:

> *"Number two, is security, some of these health care centres are situated in communities with very poor securities. A doctor or nurses going to those communities are high targets. Most of the patients are just community dwellers, even the militants and cultists seem to have a rapport but when you are new to that environment you are prone to insecurities."*

This statement reveals an additional layer of complexity in providing healthcare services in rural areas, where concerns about personal safety can deter healthcare providers from working in or travelling to certain communities.

The same doctor further elaborated:

> *"Also, for the personnel, most of the personnel cannot sleep at night in these areas because of security reasons."*

This comment highlights how security concerns not only affect day-to-day service provision but also impact the ability to retain healthcare workers in rural areas for extended periods, potentially affecting the continuity and quality of care.

5.3.5 Patient-related factors

Healthcare providers identified several patient-related factors that influence the uptake and effectiveness of colposcopy cervical cancer screening services. These factors include fear and reluctance to undergo screening, late presentation for care, and competing priorities.

5.3.5.1 Fear and Reluctance to Undergo Screening

Many healthcare providers noted that fear and reluctance were common barriers preventing women from seeking or consenting to colposcopy screening.

A female doctor **HP18** shared her experience:

> *"They feel they can't open there for you; they don't believe there is anything like cancer. Most things that happen is as a result of someone hurting them and not cancer, so it not an easy one."*

This statement reveals how fear, combined with misconceptions about the nature of cervical cancer, can lead to resistance to screening services. The reluctance to undergo an intimate examination is compounded by disbelief in the existence or relevance of cervical cancer.

Another healthcare provider **HP10** noted the fear of potential diagnosis:

> *"The fear of testing positive makes people not to go, there is this adage that says, 'what you don't know won't kill you'."*

This comment highlights how the fear of a positive diagnosis can paradoxically prevent women from accessing potentially life-saving screening services.

5.3.5.2 Late Presentation for Care

Healthcare providers frequently mentioned the challenge of women presenting for care only at advanced stages of cervical cancer, limiting the effectiveness of screening and early intervention.

A female doctor **HP14** expressed her frustration:

> *"They present very late in these rural areas. They don't present earlier a lot; they don't give in to screening, so they present late when they come with advanced age. So, it makes the work not easy. The aim of colposcopy cervical cancer screening is to catch the women early, when they catch them early, they will treat them early and avoid any evil circumstances and prevent the consequences associated with the disease. Sometimes they come at stage 2 or stages 3, what can you do?"*

This statement underscores the critical importance of early detection and the challenges healthcare providers face when women delay seeking care until symptoms are advanced.

5.3.5.3 Competing Priorities

Healthcare providers recognised that women in rural areas often have competing priorities that can interfere with their ability or willingness to seek screening services.

A male doctor **HP6** noted:

> *"The non-shows because of the farming seasons and or the market days as the women are mostly involved in organic farms which they till with non-mechanized tools."*

This observation highlights how the economic realities and daily responsibilities of rural women can take precedence over preventive health measures like cervical cancer screening.

Another healthcare provider **HP1** emphasised the need to consider these competing priorities in service delivery:

> *"Each day you wake up, you don't the symptoms in your body; you may think you are healthy, but you are not."*

This comment suggests that healthcare providers recognise the need to educate women about the asymptomatic nature of early cervical cancer and the importance of regular screening, even when they feel healthy.

5.3.6 Healthcare provider training and support

The focus group discussion revealed the critical importance of ongoing training and support for healthcare providers in delivering effective colposcopy cervical cancer screening services. This theme encompasses the need for continuous education and skill development, as well as the importance of motivation and incentives for providers.

5.3.6.1 Need for Continuous Education and Skill Development

Healthcare providers consistently emphasised the need for ongoing training to maintain and improve their skills in colposcopy and cervical cancer screening.

A male doctor **HP3** with extensive experience stated:

> *"Of course, training, retraining. We need to be provided with user friendly devices, we need to create awareness among the population as to the fact that cervical cancer can be prevented, there is need for community, statewide and national cervical cancer screening programme that will generate the client that will generate client that will require colposcopy services. We need to provide training so that we will have proficient practitioners."*

This comprehensive statement highlights not only the need for initial training but also the importance of ongoing skill development and the provision of appropriate tools and technologies.

Another healthcare provider **HP8** emphasised the need for practical, hands-on training:

> *"Doctors working in the rural area like me need training and retraining on the use of the colposcopies."*

This comment underscores the importance of practical skills training, particularly for providers working in rural areas who may have limited opportunities for peer learning or consultation.

5.3.6.2 Importance of Motivation and Incentives for Providers

Despite the focus on the barriers to the uptake of colposcopy uptake, healthcare professionals recognised some factors that motivated women to take up colposcopy.

HP9 stated:

> *“Most women come for the screening because their friends or family members encouraged them”*

Another service provider **HP13** mentioned religious leaders and awareness campaign as motivation for the screening uptake.

> *“Some of these women are motivated by their churches while others by the awareness campaign to come for the screening”*

Healthcare providers also highlighted the need for appropriate motivation and incentives to encourage sustained engagement in colposcopy and cervical cancer screening services.

A male doctor **HP4** suggested:

> *"To improve your practices and utilisation of colposcopy screening in rural area there is need for sensitization, town hall meetings where the women will be educated on the need for the screening and finally, incentives for the health care providers."*

This statement recognises that provider motivation is a crucial factor in improving service delivery and uptake. The inclusion of incentives alongside community education efforts suggests a holistic approach to improving screening services.

Another healthcare provider **HP12** noted the challenges of integrating new services into existing workloads:

> *"The staffs look at this new service as an addition and are not readily ready to partake in offering them; there is a lot of reluctance among residents to take part in offering these services."*

This observation highlights the need for appropriate incentives and support structures to encourage healthcare providers to embrace new services like colposcopy screening, particularly in resource-constrained settings.

5.3.7 Community engagement and education

Healthcare providers consistently emphasised the critical role of community engagement and education in improving the uptake and effectiveness of colposcopy cervical cancer screening services. This theme encompasses the importance of awareness campaigns and health talks, the need for culturally appropriate communication strategies, and the potential role of community health workers.

5.3.7.1 Importance of Awareness Campaigns and Health Talks

Many healthcare providers stressed the need for comprehensive awareness campaigns and regular health talks to educate rural communities about cervical cancer and the importance of screening.

A female doctor **HP14** emphasised:

"More education, more health promotion, more health talk to let the women know the need of colposcopy screening and cervical cancer screening is needed."

This statement underscores the belief among healthcare providers that increased knowledge and awareness are key to improving screening uptake.

Another healthcare provider **HP9** elaborated on specific strategies:

"They can do sensitization, mass media campaigns, talk to women and create awareness about cervical cancer screening. They can do road show in the streets and nearby communities were women aggregate."

This suggestion highlights the potential for multi-faceted, community-based approaches to health education and promotion.

5.3.7.2 Need for Culturally Appropriate Communication Strategies

Healthcare providers recognised the importance of tailoring communication strategies to the cultural context of rural communities.

A male doctor **HP1** suggested:

"Back in those, they normally go to the village and knack town criers and tell women to come for the programme, and they give them date and time. When they come, they give them the information."

This reference to traditional communication methods like town criers illustrates the potential for integrating modern health messages with culturally familiar modes of information dissemination.

Another healthcare provider **HP4** emphasised the importance of using local languages:

> *"Maybe Pidgin English or Akwa Ibom local dialect."*

This comment highlights the need for health education materials and communication strategies that are linguistically accessible to rural populations.

5.3.7.3 Potential Role of Community Health Workers

Several healthcare providers suggested leveraging community health workers to bridge the gap between healthcare facilities and rural communities.

A male doctor **HP3** proposed:

> "There needs to be training of the Community health extension workers on cervical screening as they are within those rural communities so that only those needing colposcopy and other advanced care are referred to the secondary level of care where I practice."

This suggestion recognises the potential for community health workers to play a crucial role in education, initial screening, and appropriate referral for colposcopy services.

Another healthcare provider **HP7** emphasised the importance of continuous community-based education:

> *"The person you see today might not be able to transmit the information to the people you see tomorrow, so there is need for continuous education on cervical cancer screening and colposcopy not a one-time thing."*

This statement highlights the need for ongoing, community-embedded health education efforts, which could be effectively delivered by trained community health workers.

5.3.8 Health system improvements

Healthcare providers identified several areas where improvements in the overall health system could enhance the delivery and uptake of colposcopy cervical cancer screening services. These include the need for national screening programmes, the importance of dedicated colposcopy units and staff, and the integration with other reproductive health services.

5.3.8.1 Need for National Screening Programmes

Many healthcare providers emphasised the importance of establishing comprehensive, national-level cervical cancer screening programmes to provide structure and resources for local efforts.

A male doctor **HP3** with extensive experience stated:

> *"Regrettably, this preventive service is not widely practiced in our locality and at present there are no national cervical cancer screening programmes in Nigeria. However, institutional programmes exist in tertiary hospitals across the country."*

This observation highlights the current gap in national-level programming and the resulting inconsistency in service provision across different healthcare settings.

Another healthcare provider **HP7** emphasised the potential benefits of a national programme:

"We need to create awareness among the population as to the fact that cervical cancer can be prevented, there is need for community, statewide and national cervical cancer screening programme that will generate the client that will generate client that will require colposcopy services."

This statement underscores how a national programme could not only provide resources and structure but also generate demand for screening services through increased awareness and accessibility.

5.3.8.2 Importance of Dedicated Colposcopy Units and Staff

Healthcare providers stressed the need for dedicated spaces and personnel for colposcopy services to ensure consistent, high-quality care.

A male doctor **HP6** suggested:

"We need to provide dedicated training space and staff for colposcopy screening services."

This recommendation highlights the importance of creating specialized units within healthcare facilities to support colposcopy services, rather than trying to integrate them into existing, often overburdened, general services.

Another healthcare provider **HP11** emphasised the need for more healthcare workers:

"More doctors need to be employed so that colposcopy services can be rendered regularly to those in need and that will increase the uptake of colposcopy services in the rural areas."

This comment underscores how dedicated staffing can improve both the availability and quality of colposcopy services.

5.3.8.3 Integration with Other Reproductive Health Services

Several healthcare providers suggested integrating colposcopy and cervical cancer screening services with other reproductive health services to improve accessibility and uptake.

A male doctor **HP2** proposed:

> *"We need to provide the space and colposcopy unit within the hospital and recognise colposcopy services to be a part with other reproductive health services, family planning, and other maternal health services."*

This suggestion recognises the potential synergies between different reproductive health services and how integration could improve overall women's health care.

Another healthcare provider **HP12** shared a successful example of integration:

> *"When I went for to the hospital, they told us to do the test that it was for our own good."*

This comment illustrates how integrating cervical cancer screening into routine healthcare visits can provide opportunities for education and encourage uptake of screening services.

5.3.9 Resource allocation and support

The focus group discussion highlighted the critical importance of appropriate resource allocation and support for effective colposcopy cervical cancer screening services. This theme encompasses the need for government investment in facilities and equipment, the importance of sustainable supply chains for materials, and the potential role of donor agencies and partnerships.

5.3.9.1 Need for Government Investment in Facilities and Equipment

Healthcare providers consistently emphasised the need for greater government investment in healthcare facilities and equipment to support colposcopy services.

A male doctor **HP6** stated:

> *"In my opinion to improve the use of colposcopy utilisation in these rural areas, I will use the same general approach in the general health care system. Number one, the role of the government, the government need to create system where these facilities for screening are available, the personnel are trained and retrained."*

This comprehensive statement highlights the central role of government in creating the necessary infrastructure and human resources for effective screening programmes.

Another healthcare provider **HP9** emphasised the need for basic facility improvements:

> *"The governments also need to provide securities for life and properties in these areas. Also, for the personnel, most of the personnel cannot sleep at night in these areas because of security reasons."*

This comment underscores how government support is needed not just for medical equipment, but also for creating a safe and functional working environment for healthcare providers.

5.3.9.2 Importance of Sustainable Supply Chains for Materials

Healthcare providers highlighted the challenges posed by inconsistent supply chains for essential screening materials and emphasised the need for more sustainable systems.

A male doctor **HP2** shared:

> *"Supply chain and logistics as the cervical cancer screening is a nonprofit charity venture, when materials and solutions run out it takes a while to replenish. Secondly, because it brings no revenue to the hospital rather takes from it is given low priority in terms of restocking of exhausted materials."*

This statement reveals how the non-profit nature of screening services can lead to supply chain challenges, emphasising the need for dedicated support and prioritization of these essential services.

5.3.9.3 Potential Role of Donor Agencies and Partnerships

Several healthcare providers mentioned the important role that donor agencies and partnerships play in supporting colposcopy services, while also noting the limitations of relying too heavily on external support.

A male doctor **HP3** with extensive experience shared:

> *"A few years ago, the Clinton Health Access Initiative sponsored a number of us in the See and treat programme using acetic acid and glucose iodine to screen for premalignant cervical lesions and provide they provided some hands-on training in colposcopy to a number of us."*

This example illustrates how international partnerships can provide crucial training and resources. However, the same doctor also noted challenges with donor-provided equipment:

"The brand provided for us, like I said it was provided by a donor and what they brought, that is what we used. It is not very user friendly; it has internet connections. When the internet services are erratic, we cannot use it."

This observation highlights the need for careful consideration of local contexts and sustainability when implementing donor-supported programmes.

5.4 SUMMARY OF CHAPTER

The findings presented in this chapter provide a comprehensive overview of the complex factors influencing the provision and uptake of colposcopy cervical cancer screening services in rural areas from the perspective of healthcare professionals. The interplay between healthcare provider experiences, systemic limitations, sociocultural factors, and resource constraints creates a multifaceted landscape that both facilitates and hinders the effective implementation of screening programmes.

Key issues that emerged include the critical importance of ongoing training and support for healthcare providers, the need for culturally appropriate community engagement and education strategies, the challenges posed by inadequate infrastructure and resource allocation, and the potential for integrating colposcopy services with other reproductive health programmes. The findings also highlight the significant impact of geographical and logistical challenges in rural areas, as well as the influence of patient-related factors such as fear, misconceptions, and competing priorities.

These findings underscore the need for a comprehensive, multi-level approach to improving colposcopy cervical cancer screening services in rural areas. Such an approach should address not only individual-level factors through targeted education and awareness campaigns but also systemic issues such as healthcare infrastructure, resource allocation, and national-level programming. Moreover, the unique challenges posed by rural contexts call for innovative solutions, such as mobile screening services, community-based health worker engagement, and culturally tailored communication strategies.

The insights gained from these healthcare professionals provide a valuable foundation for developing more effective, context-specific strategies to enhance the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services in rural areas. By addressing the barriers and leveraging the facilitators identified in this study, there is potential to significantly improve cervical cancer prevention and control efforts in these underserved communities.

The next chapter will synthesise these findings with those from the women's perspectives, providing a comprehensive analysis of the interactions between service users' and healthcare professionals' experiences and perceptions, and how these interact with systemic barriers to influence colposcopy cervical cancer screening services in rural areas.

CHAPTER SIX

SYNTHESIS AND COMPARISON OF FINDINGS FROM IN-DEPTH INTERVIEW WITH SERVICE USERS AND FGD WITH SERVICE PROVIDERS: A Health Belief Model Perspective

This chapter presents a comprehensive synthesis of the findings from both service users (women) and healthcare professionals (service providers) regarding colposcopy cervical cancer screening services in rural areas leading to the development of core themes and subthemes. Using the Health Belief Model (HBM) as a conceptual framework, this study seeks to provide an integrated examination of factors facilitating or hindering screening behaviours. The HBM provides a robust framework for understanding health-seeking behaviours by examining how individuals' perceptions of susceptibility, severity, benefits, barriers, cues to action, self-efficacy and beliefs influence their likelihood of taking preventive health actions. In the context of cervical cancer screening in rural settings, this analysis synthesises key components of the HBM to explore the complex interplay of psychological, social, and systemic factors that shape women's decisions on cervical cancer screening.

6.1 THE THEMES SYNTHESIS

By integrating these perspectives with focus on barriers and facilitators, this study aims to provide a holistic understanding of how the experiences and perceptions of both groups interact with systemic barriers to influence the accessibility, utilisation, and efficacy of screening services. This synthesis highlighted areas of convergence and divergence between service users and providers, offering insights into the complex dynamics that shape cervical cancer screening in rural settings. The first column delineates the overarching categories, while the second column highlights the core themes that emerged from the comprehensive synthesis of both distinct phases of this research. These themes represent the fundamental conceptual frameworks that encapsulate the essence of the participants' experiences and perceptions. In juxtaposition, the third column elucidates the sub-themes, which offer a more granular representation of the specific lived experiences observed across both phases of the study. These sub-themes serve to provide a more nuanced and textured portrayal of the information gleaned from the data collection process, offering a vivid and detailed tableau of the participants' narratives, perspectives, and encounters. This hierarchical organisation of themes and sub-themes facilitates a deeper understanding of the complex interplay between broad conceptual categories and the rich, multifaceted nature of individual experiences, thereby enabling a more comprehensive and insightful analysis of the phenomenon under investigation.

Table 6.1 Developed core themes and subthemes from synthesis of phases 1 and 2

Categories	**Core themes**	**Subthemes**
Barriers	Knowledge, Awareness, and Perceptions	-Convergence of Limited Knowledge and Awareness -Misconceptions and Cultural Beliefs - Divergence in Perceived Importance of Screening
	Barriers to Screening: A Multifaceted Challenge	- Socioeconomic and Logistical Barriers - Fear and Stigma - Healthcare System Limitations
	The Intersection of HIV and Cervical Cancer Screening	

	Technological Considerations and Innovations	
	Economic Considerations and Sustainability	
	The Impact of Gender Dynamics and Women's Empowerment	
	The Role of Traditional Medicine and Alternative Health Beliefs	
	The Psychological Impact of Screening	
	The Importance of Follow-up and Continuity of Care	
Facilitators	Facilitators and Opportunities for Improvement	- Health Consciousness and Motivation - Community Engagement and Education - Integration with Other Health Services
	The Role of Healthcare Providers: Perceptions and Expectations	-Trust and Authority - Communication and Patient Education - Provider Training and Support
	Systemic and Policy-Level Considerations	- Need for a National Screening Programme - Resource Allocation and Infrastructure Development

		- Addressing Rural-Specific Challenges
	The Role of Social Support and Community Influence	
	The Potential of Mobile and Outreach Services	

6.2 BARRIERS

6.2.1 Knowledge, awareness, and perceptions

6.2.1.1 Convergence of Limited Knowledge and Awareness

A striking area of convergence between service users and healthcare professionals was the recognition of limited knowledge and awareness about cervical cancer and screening among rural women. Perceived susceptibility—defined as the individual's perception of the threat of developing a specific disease—is a significant predictor of health-seeking behaviours according to the HBM. Women in the study frequently expressed a lack of understanding about cervical cancer, with statements such as:

> *"I don't know anything about it, I feel is something that grows inside the body."*

This perception was echoed by healthcare professionals, who consistently noted the low levels of awareness among their patients. As one healthcare provider stated:

> *"Most of being people in the rural areas are not aware of cervical cancer, neither are they are aware of a screening method; they really do not have any belief system concerning it."*

This convergence of perspectives underscores the critical need for improved health education and awareness campaigns in rural areas. The lack of basic knowledge about cervical cancer not only affects women's willingness to seek screening but also challenges healthcare providers in their efforts to promote and deliver screening services.

6.2.1.2 Misconceptions and Cultural Beliefs

Both service users and healthcare professionals identified widespread misconceptions about cervical cancer as a significant barrier to screening uptake. Under the HBM this process leads to misjudgement of risks, underestimating the threat of cervical cancer. Women often held beliefs that linked cervical cancer to factors such as promiscuity or spiritual causes, as exemplified by this statement from a participant:

> *"I don't know much but what I know is that is cancer that happen to women when they sleep with so many men."*

Healthcare providers corroborated these misconceptions, noting how cultural and religious beliefs often shaped women's attitudes towards screening. One provider observed:

> *"Most people believe in witches and wizard, and they hardly believe in medicine. Some others believe in traditional medicine than medical care."*

This alignment in perspectives highlights the deep-rooted nature of these misconceptions and the challenge they pose to implementing effective screening programmes. It suggests that addressing these beliefs requires not just providing factual information but also engaging with cultural and religious frameworks that influence health beliefs and behaviours.

6.2.1.3 Divergence in Perceived Importance of Screening

An area of divergence between service users and healthcare professionals was the perceived importance of cervical cancer screening. Perceived severity, which reflects an individual's assessment of the seriousness of a condition, is a critical construct in the HBM for motivating preventive behaviours. While healthcare providers universally recognised the critical role of screening in early detection and prevention, many women did not share this perception. As one service user stated:

> *"I feel am safe and I don't need it, I feel there is no need for it because I heard they do HIV test before you do the screening, so I don't want to do HIV test."*

This contrasts sharply with the perspective of healthcare providers, who emphasised the life-saving potential of screening. One provider noted:

> *"Colposcopy is a very important procedure especially in the early detection of cervical cancer."*

This divergence in perspectives represents a significant challenge in promoting screening uptake. It suggests that efforts to increase screening rates must go beyond simply providing services, to fundamentally shifting women's perceptions of the importance and relevance of cervical cancer screening to their health.

6.2.2 Barriers to screening: a multifaceted challenge

6.2.2.1 Socioeconomic and Logistical Barriers

Within HBM, perceived barriers, defined as an individual's judgment of the undesirable aspects of a behaviour change, can be an impediment to adoption of preventive behaviour. Both service users and healthcare professionals identified socioeconomic and logistical factors as significant barriers to screening uptake. Women frequently cited transportation costs and time constraints as reasons for not seeking screening. One service user explained:

> *"The location and the transport. The location to the general hospital is far, because I stay in Ughelli. Through and from the hospital is up to #1000."*

Healthcare providers corroborated these challenges, noting the difficulties in accessing rural healthcare facilities. One service provider described:

"The limitations that I experienced were one, transport availability, some of these rural areas are not easily accessible, some don't have good roads, and the hospital facilities are quite far from town."

This convergence of perspectives highlights the need for interventions that address the practical barriers to accessing screening services, such as mobile screening units or community-based services.

6.2.2.2 Fear and Stigma

Fear and stigma emerged as significant psychological barriers to screening in both the women's interviews and the healthcare providers' focus group discussion. This is consistent with the concept of perceived barriers of the HBM. Women expressed fears related to the screening procedure itself, potential diagnosis, and social stigma. One service user articulated these fears:

"The great reason is fear, if they check and they know they have cervical cancer men and women will stay away from them, they would not like to associate with them. People will get traumatized and go home thinking, they may go to poison the people that transfer the sickness to them, and they will develop evil things, have depression and die at early age without fulfilling their future."

Healthcare providers recognised these fears, with one noting:

"They feel they can't open there for you; they don't believe there is anything like cancer. Most things that happen is as a result of someone hurting them and not cancer, so it not an easy one."

This alignment in perspectives underscores the need for interventions that address not only the physical aspects of screening but also the psychological and social dimensions. It suggests that effective screening programmes must incorporate strategies to alleviate fears, combat stigma, and provide psychological support throughout the screening process.

6.2.2.3 Healthcare System Limitations

Screening was significantly hampered due to systemic barriers within the healthcare system. Both service users and healthcare professionals identified significant limitations within the healthcare system as barriers to effective screening services. Women reported experiences of long wait times, shortages of healthcare workers, and inadequate facilities. One service user observed:

> *"I think they need more hands to do the work, like the day I went I noticed she was the only nurse attending to me and other patients, they do not have enough nurses and doctors. So, I feel in the process of waiting, some people can change their minds."*

Healthcare providers also raised concerns around infrastructure issues like unreliable electricity, equipment shortages, inadequate infrastructure, and manpower limitations. One provider stated:

> *"Carrying out colposcopy in a facility where there is no light, sometimes of the colposcopy equipment use batteries that need to be charged. Sometimes when you want to use it there is no light, you will have to take the colposcopies to Port Harcourt and charge them and return them to the health facility before it can be used."*

This convergence of perspectives on healthcare system limitations underscores the need for systemic improvements in healthcare infrastructure, resource allocation, and workforce development to support effective cervical cancer screening programmes in rural areas.

6.2.3 The intersection of HIV and cervical cancer screening

An important theme that emerged from both service users and healthcare professionals was the complex intersection between HIV status and cervical cancer screening. This complex intersection of HIV status and cervical cancer screening interact in complex ways to affect each of the core HBM constructs. Women living with HIV expressed unique concerns about stigma and inadvertent disclosure of their status through early screening eligibility. As explained by one of the service users:

"Another reason is because I am positive to HIV, the age for screening is reduced for people with the virus. If I go tell they will say am too small to be screened and people will know my status. I don't want that embarrassment."

Healthcare providers recognised this challenge, with one noting:

"Stigmatization: most HIV patients that are below 30yrs are scared of attending because of fear of stigmatization since the age inclusion criteria for people living with HIV is 25-49yrs whereas for non-HIV individuals is 30-49yrs."

This alignment in perspectives highlights the need for sensitive and integrated approaches to HIV care and cervical cancer screening. It suggests that interventions aimed at increasing screening uptake must consider the unique needs and concerns of women living with HIV, potentially through more discrete service delivery models or education efforts that address the specific benefits of early screening for this population.

6.2.4 Technological considerations and innovations

While not extensively discussed by service users, healthcare providers highlighted the potential role of technology in improving cervical cancer screening services. They noted both the challenges posed by current technologies and the opportunities for innovation. One provider described challenges with existing equipment:

"The brand provided for us, like I said it was provided by a donor and what they brought, that is what we used. It is not very user friendly; it has internet connections. When the internet services are erratic, we cannot use it."

This perspective from healthcare providers, coupled with the access challenges reported by women, indicates that context-appropriate technological solutions need to support the practical realities of rural contexts, so they facilitate the operationalization of the HBM constructs rather than hinder it. This suggest that future interventions should consider not only the provision of screening technologies but also their suitability for rural settings with limited infrastructure.

6.2.5 Economic considerations and sustainability

Both service users and healthcare professionals touched on economic factors that influence the provision and uptake of cervical cancer screening services. Economic factors were significant modifiers of HBM constructs. Women cited direct and indirect costs as barriers to accessing services, even when services were technically free. A service user noted:

"You know everything in Nigeria is bribe, even if they tell you is free if you go there, they will tell you to bring small change."

Healthcare providers highlighted the challenges of sustaining screening programmes, particularly in the context of competing healthcare priorities. One provider observed:

"Supply chain and logistics as the cervical cancer screening is a nonprofit charity venture, when materials and solutions run out it takes a while to replenish. Secondly, because it brings no revenue to the hospital rather takes from it is given low priority in terms of restocking of exhausted materials."

These economic aspects change how HBM can be implemented by introducing the impact of factors outside of one's internal perceptions and beliefs, underscoring the importance of long-term funding mechanisms for screening initiatives.

It suggests that interventions must address not only the direct costs of screening but also the broader economic context in which these services are provided and accessed.

6.2.6 The impact of gender dynamics and women's empowerment

While not explicitly framed in terms of gender dynamics, both service users and healthcare professionals touched on issues related to women's autonomy and decision-making power in health-seeking behaviours that directly influence the use of HBM constructs. Women often mentioned needing permission or support from male partners or family members to seek screening. One of the service users shared:

"Sometimes after running test and there is no money to buy drugs, the person becomes scared. If it is life and death something fear will enter you and if you don't have the money to meet up, you will start thinking of money to pay."

Healthcare providers recognised these dynamics, with one noting:

"The aim of colposcopy cervical cancer screening is to catch the women early, when they catch them early, they will treat them early and avoid any evil circumstances and prevent the consequences associated with the disease."

This convergence of perspectives highlights the need for interventions that not only provide screening services but also address broader issues of women's empowerment and decision-making autonomy in healthcare. It suggests that effective cervical cancer prevention strategies must consider and engage with gender dynamics at both the household and community levels.

6.2.7 The role of traditional medicine and alternative health beliefs

Both service users and healthcare professionals acknowledged the influence of traditional medicine and alternative health beliefs on attitudes towards cervical cancer screening. This aligned with the construct of HBM. Women often mentioned beliefs in spiritual causes of illness or preferences for traditional remedies. A service user stated:

"Most people believe in witches and wizard, and they hardly believe in medicine. Some others believe in traditional medicine than medical care."

Healthcare providers recognised these beliefs as potential barriers to screening uptake, with one noting:

"They don't believe there is anything like cancer. Most things that happen is as a result of someone hurting them and not cancer, so it not an easy one."

This alignment in perspectives on the role of traditional beliefs suggests the need for culturally sensitive approaches to promoting cervical cancer screening. It indicates that interventions should seek to bridge the gap between traditional and modern medical paradigms, potentially by engaging traditional healers and addressing spiritual beliefs within health education efforts.

6.2.8 The psychological impact of screening

Both service users and healthcare professionals touched on the psychological aspects of cervical cancer screening, which is consistent with the concept of perceived barriers of the HBM, albeit from different perspectives. Women often expressed fears and anxieties related to the screening process and potential diagnosis. A service user stated:

"I don't have cancer, I don't want to hear any bad news, I don't want to hear anything that will make me sad."

Healthcare providers recognised these psychological barriers, with one sharing:

"My experiences have been that of being overwhelmed by the measure of helplessness I see in the women especially those who are diagnosed with cervical lesions."

This convergence of perspectives on the psychological impact of screening highlights the need for interventions that address not only the physical aspects of screening but also the emotional and psychological dimensions. It suggests that providing psychological support and counselling as part of screening services could be crucial for improving uptake and follow-through.

6.2.9 The importance of follow-up and continuity of care

Both service users and healthcare professionals identified challenges related to follow-up care and the continuity of cervical cancer screening services. Women often reported difficulties in returning for follow-up appointments or repeat screenings. A one service user shared:

"Yes, I actually went there, and they told me those people did not come that very day. I didn't have transport to Abua so I didn't go back there."

Healthcare providers echoed these concerns, with one noting:

"Follow-up, most people screened for colposcopy needs follow up in case there is need for biopsy and treatment. Follow-up after colposcopy in extremely difficult in these rural communities."

This convergence underscores that the salutary health behaviours promoted by the HBM need to be maintained over time for effect, with implications for the development of interventions that go beyond decisions about one-time screening to include continued engagement with preventive services across time.

6.3 FACILITATORS

6.3.1 Facilitators and opportunities for improvement

6.3.1.1 Health Consciousness and Motivation

Despite the numerous barriers, both service users and healthcare professionals identified factors that could facilitate increased screening uptake. some women were health conscious and understood the perceived benefits of the actions they took (the belief that making a health change would reduce their risk or the severity of a disease) and therefore engaged in behaviours in the precontemplation phase of the HBM. In their view, screening was regarded as a good preventive measure, when asked about meaning of that they considered like one service user stated that:

> *"I look going to the hospital to check myself if am free from any sickness, I like to be on a safe side."*

Healthcare providers recognised and valued this health consciousness among some women, with one noting:

> *"My experience is that the rural women are ready to accept any form of management you offer to them to make them free from cervical cancer. Colposcopy is therefore readily accepted by them as a diagnostic procedure."*

This alignment in perspectives on health consciousness represents a potential leverage point for promoting screening uptake. It suggests that building on existing motivations for health-seeking behaviour could be an effective strategy for increasing participation in cervical cancer screening programmes.

6.3.1.2 Cues to Action: Community Engagement and Education

The HBM emphasises cues to action — events, people, or things that push people to change behaviour — as an important motivator of health behaviours. Both service users and healthcare professionals emphasised the importance of community engagement and education in improving screening uptake. Women frequently suggested the need for more comprehensive awareness campaigns and health education. One service user proposed:

> *"I think the lecture should be done in different churches that are where they will listen more, in different health centres, hospitals, even pregnant women they can be lectured when they come for antenatal. They can also use town criers to announce to communities."*

Healthcare providers had similar thoughts and recommended:

> *"They can do sensitization, mass media campaigns, talk to women and create awareness about cervical cancer screening. They can do road show in the streets and nearby communities were women aggregate."*

This convergence of perspectives on the importance of community-based education and engagement strategies highlights a potential path forward for improving screening uptake. It suggests that leveraging existing community structures and communication channels could be an effective approach to disseminating information and promoting screening services.

6.3.1.3 Integration with Other Health Services

Integrating multiple services emerged as a strategy that could strengthen both action prompts and self-efficacy, or one's confidence in their ability to take action, which aligned with the HBM. Women often reported being more willing to undergo screening when it was offered in conjunction with other healthcare services. As one service user shared:

> *"When I went for to the hospital, they told us to do the test that it was for our own good."*

Healthcare providers similarly advocated for integration, with one suggesting:

"We need to provide the space and colposcopy unit within the hospital and recognise colposcopy services to be a part with other reproductive health services, family planning, and other maternal health services."

This alignment in perspectives on service integration suggests a promising strategy for increasing screening uptake by leveraging existing healthcare interactions and reducing barriers to access.

6.3.2 The role of healthcare providers: perceptions and expectations

6.3.2.1 Trust and Authority

The study revealed interesting dynamics regarding women's perceptions of healthcare providers and providers' self-perceptions of their role. This highlights that trusted and reputable sources of information can provide effective cues to action and increase self-efficacy within the HBM. Many women expressed trust in healthcare providers, particularly doctors, as sources of health information and guidance. As one participant noted:

"You know most people believe in the doctors than any other health personnel."

This trust was recognised by healthcare providers, who saw their role as crucial in promoting screening uptake. One provider stated:

"I believe that colposcopy will help these women live more productive healthier lives as the nip in the bud of indicated cervical lesions will in the long run prevent the cost burden and expenditure for cervical cancer that the women living in the remote areas cannot afford to pay."

This alignment in perspectives on the authority and influence of healthcare providers suggests that leveraging this trust could be an effective strategy for promoting screening uptake. However, it also places a significant responsibility on healthcare providers to be well-informed and effective communicators about cervical cancer and screening.

6.3.2.2 Communication and Patient Education

Having confidence, known as self-efficacy, that individual can get screened successfully was another critical factor that emerged in effective communication. Both service users and healthcare professionals identified effective communication and patient education as critical factors in promoting screening uptake. Women frequently expressed a desire for more comprehensive information about cervical cancer and screening procedures. A service user stated:

"Is for you to tell me more information about it, the advantages and disadvantages and the venue of the screening, I will go."

Healthcare providers recognised this need for effective communication but also noted challenges in conveying complex medical information to patients with limited health literacy. One provider shared:

"We communicate with them with English language, most of the women will be willing to listen to your counselling and health lectures on cervical cancer and of course most of them despite the motivations to come are reluctant to come and accept treatment or screening."

This alignment in perspectives on the importance of effective communication, coupled with the recognition of existing challenges, highlights the need for targeted interventions to improve health communication in rural settings. It suggests that developing culturally appropriate, easily understandable educational materials and training healthcare providers in effective communication strategies could significantly improve screening uptake.

6.3.2.3 Provider Training and Support

While women generally expressed trust in healthcare providers, some noted experiences with providers who seemed uncertain or lacked confidence in performing screening procedures. This aligned with healthcare providers' own expressions of need for ongoing training and support. One provider stated:

"Doctors working in the rural area like me need training and retraining on the use of the colposcopies."

This convergence of perspectives underscores the importance of continuous professional development for healthcare providers involved in cervical cancer screening. It suggests that investments in provider training and support could not only improve the quality of screening services but also enhance women's confidence in these services, potentially increasing uptake.

6.3.3 Systemic and policy-level considerations

6.3.3.1 Need for a National Screening Programme

While service users did not explicitly discuss policy-level interventions, their experiences and challenges pointed to the need for a more structured, nationwide approach to cervical cancer screening. Healthcare providers explicitly called for the establishment of a national screening programme, with one stating:

> *"Regrettably, this preventive service is not widely practiced in our locality and at present there are no national cervical cancer screening programmes in Nigeria. However, institutional programmes exist in tertiary hospitals across the country."*

Adding to this perspective is the challenges that women reported which highlights how policy frameworks create the enabling environment to enable the application of the constructs of HBM. Individual perspectives and beliefs are not enough to sustain healthy behaviours without systematic and nationally coordinated approaches.

6.3.3.2 Resource Allocation and Infrastructure Development

Both service users and healthcare professionals highlighted the need for greater investment in healthcare infrastructure and resources to support cervical cancer screening. Women frequently mentioned issues such as long wait times and lack of equipment, while healthcare providers emphasised the need for dedicated screening facilities and sustainable supply chains. One provider noted:

> *"The governments also need to provide securities for life and properties in these areas. Also, for the personnel, most of the personnel cannot sleep at night in these areas because of security reasons."*

This juxtaposition highlights how resource allocation and infrastructure development underpin the utilisation framework for the HBM constructs. Without adequate resources and infrastructure individual perceptions and beliefs cannot be easily translated into screening behaviours.

6.3.3.3 Addressing Rural-Specific Challenges

Both service users and healthcare professionals identified unique challenges associated with providing and accessing healthcare services in rural areas. These included transportation difficulties, security concerns, and limited availability of specialized services. As one healthcare provider described:

> *"Some of these rural areas are not easily accessible, some don't have good roads, and the hospital facilities are quite far from town."*

This convergence of perspectives on rural-specific challenges highlights the need for targeted interventions that address the unique context of rural healthcare delivery. It suggests that policies and programmes aimed at improving cervical cancer screening must be tailored to the specific needs and constraints of rural communities.

6.3.4 The role of social support and community influence

Excellent and local social networks and community leaders are endorsed by both service users and healthcare providers to have an important impact on women's health-seeking behaviours. Under the HBM framework, these influencers can promote action cues. Women also often stated being motivated by recommendations from trusted community members, as one service user said:

> *"My Pastor's wife who is a health worker asked me to go and do the checkup. She is a woman I love and trust so much, that is how I went."*

Healthcare providers similarly recognised the potential of leveraging community influencers, with one suggesting:

> *"Back in those, they normally go to the village and knack town criers and tell women to come for the programme and they give them date and time. When they come, they give them the information."*

This convergence of perspectives on the importance of social and community influence suggests that engaging community leaders and leveraging existing social networks could be an effective strategy for promoting cervical cancer screening. It indicates that interventions should not only target individual women but also work to create a supportive community environment that encourages screening.

6.3.5 The potential of mobile and outreach services

While not extensively discussed by service users, healthcare providers highlighted the potential of mobile and outreach services to overcome some of the geographical and logistical barriers to screening. One provider suggested:

> *"So, if they can fix a day, inform the village heads, get a venue in the community, the town crier goes round to inform people and sound alarm to tell the people of the importance, the people come to get advice."*

This perspective from healthcare providers, coupled with the access challenges reported by women, suggests that mobile and community-based screening services could be an effective strategy for increasing perceived benefits and providing cues to action which aligned with the HBM construct. It indicates that future interventions should consider flexible and innovative service delivery models that bring screening closer to the communities they serve.

6.4 SUMMARY OF CHAPTER

Framed through the Health Belief Model, this synthesis exposes the intricate interplay of individual perceptions, sociocultural contexts, and systemic factors that impact colposcopy cervical cancer screening in rural areas. This convergence of views from service users and healthcare providers on critical topics (e.g., awareness, socioeconomic barriers, need for culturally sensitive approach) serves as a strong basis for designing targeted interventions.

Divergences in perspectives, particularly about susceptibility and severity, and values (benefits of screening) emphasise potential gaps to be filled to be able to address differences in behaviour. There are considerable opportunities to improve prevention of cervical cancer in rural communities, by addressing the individual perceptions and broader systemic factors highlighted in this synthesis.

Future interventions should target health knowledge, to increase perceived susceptibility and severity; reduce barriers and enhance benefits; provide effective cues to action; and increase self-efficacy—all components of the Health Belief Model—as part of a multi-level approach. Secondly, interventions should take into consideration the modifiers and contexts that determine the pathway between these constructs and health behaviours. Such multifaceted strategies can significantly alleviate the burden of this preventable disease in rural communities.

CHAPTER SEVEN

DISCUSSION OF MAIN RESULTS

This chapter presents a comprehensive discussion of the core themes that emerged from the synthesis of findings from both service users (women) and healthcare professionals (service providers) regarding colposcopy cervical cancer screening services in rural areas. The discussion explored factors unique to rural areas versus those that cut across both rural and urban settings as well as how these findings align with or diverge from existing literature and considered the implications for developing effective interventions to improve cervical cancer screening in rural settings. The chapter also addressed key areas for intervention that emerge from this synthesis, providing a foundation for future research and policy development.

7.1 DISCUSSION OF SYNTHESISED FINDINGS

7.1.1 Knowledge, Awareness, and Perceptions

The convergence of perspectives between service users and healthcare professionals regarding limited knowledge and awareness about cervical cancer and screening among rural women is a critical finding of this study. This lack of awareness is consistent with findings from other low- and middle-income countries (LMICs). For instance, Chidyaonga-Maseko, Chirwa and Muula (2015) found that lack of knowledge about cervical cancer and screening was a significant barrier to uptake in sub-Saharan Africa. Similarly, Ndejjo *et al.* (2016) reported low levels of awareness about cervical cancer and screening among women in rural Uganda. The misconceptions and cultural beliefs identified in this study, such as linking cervical cancer to promiscuity or spiritual causes, are also well-documented in the literature. Lyimo and Beran (2012) found that misconceptions about the causes of cervical cancer were common among women in rural Tanzania and significantly influenced screening behaviours. The alignment of perspectives between service users and providers on these misconceptions underscores the deeply rooted nature of these beliefs and the challenge they pose to implementing effective screening programmes. The divergence in perceived importance of screening between service users and healthcare professionals is a crucial finding that has implications for intervention design. While healthcare providers universally recognised the critical role of screening, many women did not share this perception. This gap in understanding is consistent with findings from other studies. For example, Modibbo *et al.* (2016) found that many Nigerian women did not perceive themselves to be at risk of cervical cancer and therefore did not see the need for screening. These findings suggest that interventions to improve cervical cancer screening uptake must go beyond simply providing services. They need to address fundamental knowledge gaps, challenge misconceptions, and work to shift perceptions about the importance of screening. Health education interventions that are culturally sensitive and address local beliefs and misconceptions have shown promise in other settings. For instance, Rosser *et al.* (2015) demonstrated that a culturally tailored educational intervention in rural Kenya significantly improved knowledge about cervical cancer and increased screening uptake.

7.1.2 Barriers to Screening: A Multifaceted Challenge

The identification of socioeconomic and logistical barriers to screening by both service users and healthcare professionals aligns with a substantial body of literature on healthcare access in rural areas of LMICs. The challenges of transportation costs and distance to healthcare facilities are well-documented barriers to healthcare utilisation in rural settings (Strasser, 2003; Peters *et al.,* 2008). The convergence of perspectives on these barriers in the current study underscores their significance and the need for interventions that address these practical challenges. The emergence of fear and stigma as significant psychological barriers to screening is consistent with findings from other studies in similar settings. For example, Ndejjo *et al.* (2017) found that fear of the screening procedure and fear of a positive diagnosis were major barriers to cervical cancer screening uptake in Uganda. The alignment of perspectives between service users and providers on these psychological barriers highlights the need for interventions that address not only the physical aspects of screening but also the emotional and social dimensions. The healthcare system limitations identified by both service users and providers, such as long wait times, shortages of healthcare workers, and inadequate facilities, are common challenges in rural healthcare settings across LMICs (Anyangwe and Mtonga, 2007). These systemic issues underscore the need for broader health system strengthening efforts to support effective cervical cancer screening programmes. These findings suggest that effective interventions to improve cervical cancer screening in rural areas must be multifaceted, addressing not only individual-level barriers but also systemic challenges. Potential strategies could include: 1. Mobile screening units to overcome transportation barriers and bring services closer to communities. 2. Community-based education programmes to address fears and misconceptions about screening. 3. Integration of cervical cancer screening with other health services to leverage existing healthcare interactions. 4. Health system strengthening initiatives to improve infrastructure, equipment availability, and healthcare workforce capacity.

7.1.3 Facilitators and Opportunities for Improvement

The identification of health consciousness and motivation among some women as potential facilitators for screening uptake is an important finding. This aligns with the Health Belief Model, which posits that perceived susceptibility to and severity of a health condition, along with perceived benefits of preventive action, can motivate health-seeking behaviour (Janz and Becker, 1984). The recognition of this health consciousness by healthcare providers suggests a potential leverage point for promoting screening uptake. The emphasis on community engagement and education by both service users and providers is consistent with growing evidence on the effectiveness of community-based approaches in promoting health behaviours in LMICs. For instance, O'Donovan, O'Donovan and Nagraj (2019) found that community health worker interventions were effective in increasing cervical cancer screening uptake in various LMICs. The suggestions for using existing community structures and communication channels, such as churches and town criers, align with recommendations for culturally appropriate health promotion strategies (Henderson, Kendall and See, 2011). The potential for integrating cervical cancer screening with other health services, as recognised by both service users and providers, is supported by evidence from other settings. Kumakech *et al*. (2014) found that integrating HIV and cervical cancer screening services in Uganda was acceptable to communities and could potentially increase uptake of both services. This approach aligns with broader strategies for integrated service delivery in resource-limited settings (Atun *et al*., 2010).

7.1.4 The Role of Healthcare Providers: Perceptions and Expectations

The trust and authority accorded to healthcare providers, particularly doctors, by service users is a significant finding that aligns with research on the importance of provider-patient relationships in healthcare utilisation. Studies have shown that trust in healthcare providers can significantly influence health-seeking behaviours and treatment adherence (Goudge and Gilson, 2005). The recognition of this trust by healthcare providers in the current study suggests an opportunity to leverage these relationships to promote screening uptake. The identification of effective communication and patient education as critical factors in promoting screening uptake by both service users and providers is consistent with literature on health communication in LMICs. Nutbeam (2000) highlighted the importance of health literacy in empowering individuals to take control of their health. The challenges in conveying complex medical information to patients with limited health literacy, as noted by providers in this study, underscore the need for targeted interventions to improve health communication in rural settings. The expressed need for ongoing training and support among healthcare providers, and the recognition of this need by some service users, aligns with global recommendations for strengthening the healthcare workforce in LMICs (World Health Organisation, 2016). Continuous professional development is crucial for maintaining and improving the quality of healthcare services, particularly in rapidly evolving fields such as cancer screening.

7.1.5 Systemic and Policy-Level Considerations

The call for a national screening programme by healthcare providers, coupled with the challenges reported by women in accessing consistent and high-quality screening services, underscores the need for a comprehensive, nationally coordinated approach to cervical cancer prevention. This aligns with global recommendations for strengthening national cancer control programmes in LMICs (Ginsburg *et al.,* 2017). The absence of a national cervical cancer screening programme in Nigeria, as noted in this study, is a significant gap that has been identified in other studies of cancer control in the country (Umezulike *et al.,* 2018). The need for greater investment in healthcare infrastructure and resources to support cervical cancer screening, as highlighted by both service users and providers, is consistent with broader analyses of healthcare system challenges in LMICs. Kieny *et al*. (2017) emphasised the importance of health system strengthening for achieving universal health coverage and sustainable development goals. The specific challenges of rural healthcare delivery identified in this study, such as transportation difficulties and security concerns, align with findings from other rural health studies in LMICs (Strasser, 2003).

7.1.6 The Intersection of HIV and Cervical Cancer Screening

The complex intersection between HIV status and cervical cancer screening identified in this study is an important finding with significant implications for service delivery. The concerns expressed by HIV-positive women about stigma and inadvertent disclosure of their status through early screening eligibility highlight the need for sensitive and integrated approaches to HIV care and cervical cancer prevention. This finding aligns with research on the challenges of providing integrated sexual and reproductive health services for women living with HIV in LMICs (Kumakech *et al.,* 2014). The recognition of this challenge by healthcare providers suggests an awareness of the need for more nuanced approaches to screening promotion and service delivery for this vulnerable population. This aligns with global recommendations for integrating HIV services with other health services, including cervical cancer screening (World Health Organisation, 2020).

7.1.7 The Role of Social Support and Community Influence

The recognition by both service users and healthcare professionals of the significant influence of social networks and community leaders on women's health-seeking behaviours is consistent with social ecological models of health behaviour (Solar and Irwin, 2010). The importance of recommendations from trusted community members in motivating women to seek screening aligns with findings from other studies in LMICs. For instance, Ndejjo *et al.* (2017) found that social support and encouragement from family and community members were important facilitators of cervical cancer screening uptake in Uganda. The suggestion by healthcare providers to leverage community influencers, such as town criers, aligns with growing evidence on the effectiveness of community-based approaches in health promotion. Musa *et al.* (2017) demonstrated that a community-based health education intervention significantly increased cervical cancer screening uptake in rural Nigeria.

7.1.8 Technological Considerations and Innovations

The challenges with existing screening technologies and the opportunities for innovation highlighted by healthcare providers in this study reflect broader discussions in the literature about the role of technology in improving healthcare access in LMICs. The issues with user-friendliness and internet connectivity requirements of some screening equipment align with findings from other studies on the challenges of implementing health technologies in resource-limited settings (Catarino *et al*., 2015). While not extensively discussed by service users, the potential of technology to overcome some of the barriers to screening identified in this study, such as geographical isolation and limited access to specialist services, is well-documented in the literature. For instance, Basu *et al.* (2018) demonstrated the effectiveness of a smartphone-based visual inspection system for cervical cancer screening in rural India.

7.1.9 Economic Considerations and Sustainability

The economic challenges associated with cervical cancer screening, as identified by both service users and healthcare professionals in this study, are consistent with broader literature on the financial barriers to healthcare access in LMICs. The concerns about direct and indirect costs associated with screening, even when services are ostensibly free, align with findings from other studies. For instance, Chigbu *et al.* (2017) found that financial constraints were a significant barrier to cervical cancer screening uptake among rural women in South-Eastern Nigeria. The challenges of sustaining screening programmes in the context of competing healthcare priorities, as noted by healthcare providers, reflect broader issues of resource allocation in resource-limited health systems. This aligns with discussions in the literature about the need for sustainable financing models for cancer control programmes in LMICs (Ginsburg *et al.,* 2017).

7.1.10 The Impact of Gender Dynamics and Women's Empowerment

The issues related to women's autonomy and decision-making power in health-seeking behaviours, as touched upon by both service users and healthcare professionals in this study, align with a substantial body of literature on gender and health in LMICs. The need for permission or support from male partners or family members to seek screening, as mentioned by some women, reflects broader gender dynamics that influence women's health behaviours. This finding is consistent with studies from other contexts. For example, Lyimo and Beran (2012) found that women's lack of independent decision-making power was a significant barrier to cervical cancer screening uptake in rural Tanzania. The recognition by healthcare providers of the need to "catch women early" for effective prevention highlights an awareness of the gendered dimensions of health-seeking behaviours and the potential consequences of delayed care. This aligns with broader discussions in the literature about the importance of gender-sensitive approaches to health promotion and service delivery (Blas and Kurup, 2010).

7.1.11 The Role of Traditional Medicine and Alternative Health Beliefs

The influence of traditional medicine and alternative health beliefs on attitudes towards cervical cancer screening, as acknowledged by both service users and healthcare professionals in this study, is consistent with findings from other LMICs. The belief in spiritual causes of illness or preferences for traditional remedies, as mentioned by some women, aligns with studies from various cultural contexts. For instance, Abotchie and Shokar (2009) found that belief in traditional medicine was associated with lower uptake of cervical cancer screening among college students in Ghana. The recognition by healthcare providers of these beliefs as potential barriers to screening uptake reflects an awareness of the need to engage with traditional belief systems in promoting modern medical interventions. This aligns with growing literature on the importance of cultural competence in healthcare delivery and health promotion (Henderson, Kendall and See, 2011).

7.1.12 The Psychological Impact of Screening

The psychological aspects of cervical cancer screening, as highlighted by both service users and healthcare professionals in this study, align with a growing body of literature on the psychological barriers to cancer screening in LMICs. The fears and anxieties expressed by women related to the screening process and potential diagnosis are consistent with findings from other studies. For instance, Ndejjo *et al.* (2016) found that fear of the screening procedure and fear of a positive diagnosis were significant barriers to cervical cancer screening uptake in rural Uganda. The recognition by healthcare providers of the psychological burden associated with screening and diagnosis, as evidenced by the expression of feeling "overwhelmed by the measure of helplessness" in women diagnosed with cervical lesions, reflects an awareness of the emotional dimensions of cancer screening. This aligns with research on the psychological impact of cancer screening and diagnosis in various contexts (Cyrielle *et al*., 2019).

7.1.13 The Importance of Follow-up and Continuity of Care

The challenges related to follow-up care and continuity of cervical cancer screening services, as identified by both service users and healthcare professionals in this study, are well-documented in the literature on cancer control in LMICs. The difficulties reported by women in returning for follow-up appointments or repeat screenings, often due to logistical challenges such as transportation, align with findings from other studies. For example, Basu *et al.* (2018) found that loss to follow-up was a significant challenge in a cervical cancer screening programme in rural India. The concerns expressed by healthcare providers about the difficulties in ensuring follow-up after colposcopy reflect broader challenges in maintaining continuity of care in resource-limited settings. This aligns with discussions in the literature about the need for comprehensive, long-term approaches to cancer prevention and control in LMICs (Ginsburg *et al*., 2017).

7.1.14 The Potential of Mobile and Outreach Services

The potential of mobile and outreach services to overcome geographical and logistical barriers to screening, as highlighted by healthcare providers in this study, is supported by growing evidence from other LMICs. The suggestion to use mobile screening units and community-based services aligns with successful interventions reported in the literature. For instance, Mauad *et al.* (2009) demonstrated the effectiveness of a mobile mammography screening programme in improving breast cancer screening rates in rural Brazil. While not extensively discussed by service users in this study, the access challenges reported by women suggest that mobile and community-based services could address many of the barriers they face in accessing screening. This aligns with the broader literature on strategies to improve healthcare access in rural and remote areas (Strasser, 2003).

7.2 CONTEXTUAL ANALYSIS: RURAL-SPECIFIC VERSUS COMMON FACTORS ACROSS RURAL AND URBAN AREAS

This study presents critical differences between challenges that are unique to a rural context and those that are relevant irrespective of the rural or urban classification of the colposcopy cervical cancer screening services.

7.2.1 Factors Unique to Rural Areas

Similarly, transportation barriers appeared particularly noticeable in rural contexts as participants noted obstacles in not only distance, but the cost, and safety aspects specific to remote areas, particularly for women. Strasser (2003) documented the impact of rural geography on the access of healthcare facilities; the situation is critically different in urban centres. The poor infrastructure still facing rural clinics, such as erratic electricity and unreliable access to the internet, also has a profound impact on technology-dependent screening processes (Strasser, 2003) consistent with the results of Catarino et al. Donaldson *et al* (2015) on the barriers to the implementation of health technologies in resource-limited settings.

Rural areas have their own workforce challenges, such extreme shortages of health care workers and retention difficulties for some specialized providers. The "rural health workforce crisis" highlighted by Anyangwe and Mtonga (2007) leads to a specific service quality gap that is not experienced to the same extent in urban areas.

In rural communities, however, the authors identified particularly strong influences of traditional medicine and alternative health beliefs. The rise of town criers and aspects of community structure as channels of information demonstrate a unique rural communication ecology that must be tapped (Henderson, Kendall and See 2011).

7.2.2 Factors Common Across Rural and Urban Areas

Many of the barriers cross the rural-urban divide. These knowledge gaps and misconceptions about cervical cancer were consistent with LMIC studies (Chidyaonga-Maseko *et al.* 2015; Chirwa & Muula 2015) that also included wide demographic representations. Just as psychological barriers, such as fear of diagnosis and stigma, seem universal, Ndejjo *et al.* (2017) findings that these factors impact screening uptake across settings.

Poor healthcare system, such as shortage of medical supplies or lack of funding, is one of many systemic barriers for sexual and reproductive health and right (SRHR) in LMICs and it applies to both rural and urban areas (Kieny *et al.,* 2017). Gender dynamics shaping healthcare decision-making also occur across settings, with Lyimo and Beran (2012) observing that women's autonomy often constrains screening practices across communities.

Grasping these differences is paramount to creating specific interventions to overcome both the barriers faced in rural areas and those which are common for any colposcopy screening service.

7.3 KEY AREAS FOR INTERVENTION

Based on the synthesis of findings from this study and their alignment with existing literature, several key areas for intervention emerge, each of which warrants detailed consideration for their potential to significantly improve cervical cancer screening services in rural areas of Nigeria and similar low- and middle-income country (LMIC) settings.

7.3.1. Comprehensive Health Education and Awareness Programmes

The development of culturally sensitive, community-based education initiatives is crucial to address the significant knowledge gaps, misconceptions, and cultural beliefs about cervical cancer and screening identified in this study. These programmes should be designed to leverage local communication channels and community influencers, recognizing the powerful role that social networks and community leaders play in shaping health behaviours in rural settings. This approach aligns with the growing body of evidence on the effectiveness of community-based health education interventions in LMICs. For instance, Musa *et al*. (2017) demonstrated that community-based education programmes significantly increased cervical cancer screening uptake in rural Nigeria. Similarly, Rosser, Njoroge and Huchko (2015) found that a culturally tailored educational intervention in rural Kenya improved knowledge about cervical cancer and increased screening rates. To be effective, these programmes should go beyond simply providing factual information about cervical cancer and screening. They need to engage with local beliefs and address common fears and misconceptions identified in this study, such as the belief that cervical cancer is linked to promiscuity or spiritual causes. This may involve collaborating with traditional healers and religious leaders to create messages that resonate with local belief systems while promoting evidence-based screening practices. Furthermore, these education programmes should address the complex intersection of HIV and cervical cancer screening identified in this study. Tailored messages for women living with HIV should explain the importance of early and regular screening while addressing concerns about stigma and inadvertent status disclosure.

7.3.2. Health System Strengthening

Investing in healthcare infrastructure, equipment, and workforce development is essential to support effective cervical cancer screening programmes in rural areas. This includes addressing issues of resource allocation, supply chain management, and healthcare worker retention. The study's findings on healthcare system limitations, such as equipment shortages, inadequate infrastructure, and manpower constraints, align with broader analyses of healthcare system challenges in LMICs (Kieny *et al.*, 2017). Addressing these systemic issues requires a comprehensive approach that goes beyond simply providing screening equipment. Infrastructure improvements should focus on creating dedicated spaces for cervical cancer screening within existing healthcare facilities, ensuring reliable electricity supply, and improving water and sanitation facilities. Equipment provision should be accompanied by robust maintenance plans and training for local technicians to ensure sustainability.

Workforce development is crucial, given the shortages of healthcare workers in rural areas identified in this study. This could involve implementing incentive schemes to attract and retain healthcare workers in rural areas, as well as developing career progression pathways for rural health workers. The World Health Organisation's (2016) global strategy on human resources for health provides valuable guidance in this area. Supply chain management for screening supplies and medications is another critical area for improvement. Implementing electronic inventory management systems and exploring regional pooled procurement strategies could help ensure a consistent supply of necessary materials.

7.3.3. Integrated Service Delivery

Exploring opportunities to integrate cervical cancer screening with other health services, particularly reproductive health and HIV services, emerged as a promising strategy to improve accessibility and uptake. This approach aligns with global recommendations for comprehensive sexual and reproductive health services (World Health Organisation, 2017) and is supported by evidence of improved health outcomes and cost-effectiveness when services are integrated (Lindegren *et al.,* 2012). The study's findings on the complex intersection of HIV and cervical cancer screening underscore the importance of this integrated approach. Developing models of care that offer cervical cancer screening as part of routine HIV care could help address the unique needs and concerns of women living with HIV identified in this research.

Integration could also extend to other reproductive health services, such as family planning and antenatal care. This approach could leverage existing healthcare interactions to promote cervical cancer screening, potentially increasing uptake among women who might not otherwise seek out screening services. However, implementing integrated services requires careful planning and coordination. It may involve redesigning patient flow within healthcare facilities, cross-training healthcare workers, and developing integrated health information systems. Pilot studies of different integration models in rural settings could provide valuable insights for scaling up these approaches.

7.3.4. Mobile and Community-Based Screening Services

Implementing flexible service delivery models, such as mobile screening units and community-based services, emerged as a promising strategy to overcome the geographical and logistical barriers to access identified in this study. These approaches align with growing evidence on the effectiveness of outreach strategies in improving healthcare access in rural and remote areas (Strasser, 2003). Mobile screening units could be particularly effective in reaching women in remote areas who face significant transportation challenges. These units could be equipped with necessary screening equipment and staffed by trained healthcare workers, potentially offering a range of preventive health services alongside cervical cancer screening. Community-based screening services could involve training community health workers to conduct initial screenings and facilitate referrals to higher-level facilities when necessary. This approach has shown promise in other LMICs, with studies demonstrating the effectiveness of community health worker interventions in increasing cancer screening uptake (O'Donovan, O'Donovan and Nagraj, 2019). However, implementing these outreach models requires careful consideration of quality control measures, referral pathways, and follow-up mechanisms. It also necessitates community engagement to ensure acceptability and uptake of these services.

7.3.5. Provider Training and Support

Developing comprehensive training programmes for healthcare providers emerged as a crucial area for intervention. These programmes should address not only technical skills but also effective communication, cultural competence, and patient education strategies. The study's findings on the challenges healthcare providers face in communicating complex medical information to patients with limited health literacy underscore the importance of this multifaceted approach to training. Training should also focus on sensitive and non-stigmatizing approaches to providing care for women living with HIV, addressing the unique challenges identified in this study. This could involve modules on confidentiality, stigma reduction, and the specific health needs of women living with HIV. Furthermore, the study's findings on the psychological burden experienced by healthcare providers highlight the need for support mechanisms such as mentorship programmes, peer support networks, and stress management training. These could help address the feelings of helplessness and frustration reported by providers when confronted with advanced cases of cervical cancer. Continuous professional development opportunities, potentially leveraging e-learning platforms, could help ensure that rural healthcare providers stay updated on the latest screening techniques and guidelines.

7.3.6. Technology-Enabled Solutions

Leveraging appropriate technologies to improve screening processes, patient tracking, and follow-up care emerged as a promising area for intervention. This could include telemedicine, mobile health applications, and electronic health records. The study's findings on the challenges of ensuring follow-up care and continuity of screening services in rural areas suggest that technology could play a crucial role in addressing these issues. For instance, mobile health applications could be used to send screening reminders, provide health education, and facilitate appointment scheduling.

Telemedicine could enable remote consultations with specialists, potentially improving the quality of care in rural areas and reducing the need for patients to travel long distances for follow-up care. Electronic health records could improve information sharing across different levels of the healthcare system, enhancing continuity of care and enabling more effective tracking of screening histories and follow-up needs. However, implementing these technology-enabled solutions requires careful consideration of infrastructure limitations, such as unreliable electricity and internet connectivity, identified in this study. It also necessitates training for healthcare providers and patients in the use of these technologies.

7.3.7. Psychological Support Services

Integrating psychological support and counselling into cervical cancer screening programmes emerged as a crucial area for intervention, addressing the fears, anxieties, and emotional impact of screening and diagnosis identified in this study. This could involve training healthcare providers in basic counselling skills and empathetic communication to better support women through the screening process. It could also include the development of peer support groups or mentorship programmes for women undergoing screening or dealing with positive diagnoses. Furthermore, public education campaigns that address common fears and anxieties associated with cervical cancer screening, potentially using testimonials from women who have undergone the process, could help alleviate psychological barriers to screening uptake.

7.3.8. Gender-Sensitive Approaches

Implementing interventions that address gender dynamics and promote women's empowerment in healthcare decision-making emerged as an important area for intervention. The study's findings on the need for women to seek permission or support from male partners or family members to access screening highlight the importance of this approach. Gender-sensitive interventions could include community-based programmes that engage men and other family members in cervical cancer education and prevention efforts. They could also involve initiatives to enhance women's autonomy and decision-making power in healthcare, potentially through economic empowerment programmes or education initiatives. Training healthcare providers on gender-sensitive approaches to service delivery and communication is also crucial. This could involve modules on recognizing and addressing gender-based barriers to healthcare access and promoting women's agency in health decision-making.

7.3.9. Sustainable Financing Models

Developing innovative financing mechanisms to ensure the sustainability of cervical cancer screening programmes emerged as a critical area for intervention. This could potentially include public-private partnerships or performance-based financing.

The study's findings on the economic challenges associated with cervical cancer screening, including concerns about direct and indirect costs even when services are ostensibly free, underscore the need for sustainable financing models. Public-private partnerships could leverage private sector resources and expertise to complement public sector efforts in cervical cancer prevention. For instance, partnerships with mobile network operators could support the implementation of mHealth solutions for screening reminders and health education. Performance-based financing, where funding is tied to specific health outcomes or service delivery targets, could incentivize healthcare providers and facilities to prioritize cervical cancer screening services. However, careful design of these schemes is necessary to avoid unintended consequences such as neglect of non-incentivized services. Exploring community-based health insurance schemes or social impact bonds could also provide innovative ways to finance cervical cancer screening programmes in resource-limited settings.

7.3.10. Policy Advocacy

Advocating for the development and implementation of a comprehensive national cervical cancer screening programme with clear guidelines, standardised protocols, and dedicated resources emerged as a crucial area for intervention. The study's findings on the lack of a national cervical cancer screening programme in Nigeria, and the resulting inconsistencies in service provision, underscore the importance of this policy-level intervention. A national programme could provide the necessary framework and resources to address many of the challenges identified in this research. Advocacy efforts should focus on demonstrating the public health and economic benefits of investing in cervical cancer prevention. This could involve conducting cost-effectiveness analyses and highlighting the potential for cervical cancer screening to contribute to broader health system strengthening efforts. Engaging with policymakers, professional associations, civil society organisations, and international partners will be crucial in building support for a national programme. Lessons can be drawn from countries that have successfully implemented national cervical cancer screening programmes, adapting these experiences to the Nigerian context.

In summary, these key areas for intervention provide a comprehensive framework for improving cervical cancer screening services in rural areas of Nigeria and similar LMIC settings. While each area is important in its own right, their interconnected nature suggests that a holistic, systems-based approach will be most effective in addressing the complex challenges identified in this study. Future research should focus on developing and evaluating interventions in these key areas, with a particular emphasis on their feasibility, acceptability, and effectiveness in rural LMIC contexts.

7.4 SUMMARY OF CHAPTER

The synthesis of findings from service users and healthcare professionals in this study provides a comprehensive understanding of the complex factors influencing cervical cancer screening in rural areas of Nigeria. The alignment of many of these findings with existing literature from other LMICs suggests that the challenges and opportunities identified are not unique to this context but reflect broader issues in cervical cancer prevention in resource-limited settings. The convergence of perspectives between service users and providers on key issues such as knowledge gaps, socioeconomic barriers, and the influence of cultural beliefs underscores the importance of these factors in shaping screening behaviours and service delivery. At the same time, the divergences in perspectives, particularly around the perceived importance of screening, highlight areas where additional efforts may be needed to bridge gaps in understanding and expectations. The key areas for intervention emerging from this synthesis provide a roadmap for developing comprehensive, context-appropriate strategies to improve cervical cancer screening uptake and effectiveness in rural areas. These interventions must be multifaceted, addressing not only individual-level factors but also systemic challenges and broader social determinants of health. Ultimately, improving cervical cancer screening in rural areas requires a concerted effort from multiple stakeholders, including policymakers, healthcare providers, community leaders, and women themselves. By addressing the complex interplay of individual, sociocultural, and systemic factors identified in this study, there is potential to significantly reduce the burden of cervical cancer in underserved rural communities.

CHAPTER EIGHT

CONCLUSION AND IMPLICATIONS

This culminating chapter serves as a critical nexus, synthesising the study's objectives, findings, and novel contributions to the existing corpus of knowledge in women's health research. It commences with a retrospective examination of the primary aim and research questions that served as the lodestar for this investigation, followed by a nuanced and comprehensive synthesis of the original insights gleaned regarding women lived experiences and perceptions of colposcopy screening. The chapter's overarching purpose is to situate these empirical findings within the broader tapestry of women's health research, elucidating their significance and potential to catalyse transformative changes in cervical cancer screening practices and policies.

Through a multifaceted lens—encompassing theoretical, practical, and policy-oriented perspectives—this concluding discourse offers a holistic exegesis of the research's contributions and limitations. It meticulously delineates both the strengths and constraints that have emerged throughout the rigorous research process, providing a balanced and critical appraisal of the study's scope, depth, and methodological robustness. This reflective analysis serves not only to contextualise the current findings but also to chart new trajectories for future scholarly inquiry in this vital domain of public health.

Central to this discourse is an in-depth analysis of how the present research both augments and challenges the current epistemological landscape, along with its far-reaching implications for clinical praxis, healthcare policy formulation, and future research paradigms. The chapter seamlessly integrates empirically grounded suggestions from participants for enhancing uptake and participation into cogent policy and practice recommendations. These data-driven propositions encompass a diverse array of strategies aimed at raising public awareness, which participants posited as instrumental in elevating knowledge levels among potential service users. A core objective underpinning these recommendations is the mitigation of financial burden, mortality, and morbidity associated with late-stage diagnosis of cervical cancer—a persistent public health challenge, particularly in resource-constrained settings.

The findings advocate for the development and implementation of alternative, culturally appropriate screening methodologies to address the persistently low uptake rates observed in many communities. This approach recognises the heterogeneity of cultural contexts and the necessity for tailored interventions that resonate with diverse populations. Moreover, the research underscores the imperative for enhanced sensitivity training among healthcare professionals, a crucial step towards creating a more empathetic and patient-centred screening environment. This recommendation emerges from a nuanced understanding of the complex interplay between clinical expertise and interpersonal dynamics in shaping women's experiences of cervical cancer screening.

The study's principal finding revolves around the sexual connotations intrinsically linked to cervical cancer and its screening procedures—a complex phenomenon that has hitherto received insufficient attention in the literature. A multifaceted analysis reveals that this sexual association is influenced by a sophisticated interplay of factors, including varying levels of awareness and knowledge, deep-rooted sociocultural influences, and the intimate nature of the physical screening procedure itself. These finding challenges existing paradigms and necessitates a recalibration of how cervical cancer screening is conceptualized, communicated, and implemented across diverse cultural contexts.

In essence, this introductory section sets the stage for a comprehensive and critical examination of the study's findings, their implications, and their potential to reshape the landscape of cervical cancer screening. By weaving together empirical insights, theoretical frameworks, and practical considerations, this chapter aims to provide a nuanced and holistic understanding of the complex issues surrounding colposcopy screening, ultimately contributing to the advancement of women's health and well-being on a global scale.

8.1 HOW WOMEN'S HEALTH INDICATORS ARE RELATED TO CERVICAL CANCER SCREENING

This study also highlights important linkages between broader women's health challenges and unique cervical cancer screening barriers in under-resourced rural contexts. Learning gaps in this field of healthcare exist for both the service user and the service provider, and although this lack of understanding relates to the population in question (cervical cancer), the nature of these gaps is indicative of a wider failing of health literacy that should be examined in the context of reproductive health knowledge more broadly rather than disease by disease.

Socioeconomic barriers to screening—transportation costs, time constraints, opportunity costs—reflect barriers women experience accessing all health services. The time poverty resulting from the “triple burden” that rural women bear (productive, reproductive and community roles) impacts all health-seeking behaviour. Solutions must take into account women’s multiple tasks and economic realities.

Psychosocial barriers to screening (fear, anxiety, privacy issues) reflect larger questions of bodily autonomy and dignity. Cultural taboos around our reproductive organs make it seem embarrassing to talk about gynaecological health at all. Such interventions must also target deep-rooted gender norms that affect women’s comfort seeking reproductive healthcare.

Limitations of the health care system — shortages in personnel, equipment, infrastructure — are reflection of systemic issues in rural women’s health services at large. Fragmented nature of women's health services is reflected by the dependency of individual provider initiative rather than systematic approach.

These key social determinants underlie the limited decision-making power of women in the field of healthcare. The role of male partner involvement as barrier and facilitator across women’s health services. Intersection between HIV and cervical cancer screening illustrates how targeted disease strategies generate silos, and that integrated service provision could yield improved health outcomes for women.

Collectively rather than individually, women’s health behaviours are shaped by community influence and social networks. Successful interventions for cervical screening should form part of a broader framework for women’s health, in which community participation, mobile outreach, and integrated service delivery provide avenues to comprehensive healthcare beyond prevention of one disease such as cancer.

8.2 IMPLICATIONS OF THE STUDY

The findings of this study on colposcopy cervical cancer screening services in rural areas have far-reaching implications for policy, practice, and future research. These implications are multifaceted and interconnected, reflecting the complex nature of healthcare delivery in resource-limited settings. This section will critically analyse these implications, situating them within the broader context of global health and development.

8.2.1 Implications for Practice and Policy

The findings of this study have significant implications for both clinical practice and health policy in the context of cervical cancer prevention in rural areas. For clinical practice, the results underscore the need for more effective patient education and communication strategies. Healthcare providers must be equipped with the skills and resources to convey complex medical information in culturally appropriate and easily understandable ways. This may involve developing tailored educational materials, utilising visual aids, and employing communication techniques that resonate with local beliefs and practices. The study also highlights the importance of addressing psychological barriers to screening within clinical settings. Providing counselling services, creating supportive and non-judgmental environments, and offering clear, reassuring information about the screening process could help alleviate fears and anxieties that deter women from seeking screening.

The findings suggest that integrating cervical cancer screening with other reproductive health services could be an effective strategy for increasing uptake. Clinicians should consider offering screening as part of routine women's health check-ups, antenatal care, or family planning services to leverage existing healthcare interactions. For healthcare providers working in rural areas, the study underscores the need for continuous training and support. Regular skill updates, access to mentorship, and opportunities for professional development could enhance providers' confidence and competence in delivering screening services. At the policy level, the findings call for a comprehensive, nationally coordinated approach to cervical cancer prevention. The development of a national screening programme, with clear guidelines, standardised protocols, and dedicated resources, could help address the inconsistencies and gaps in service provision identified in the study.

The research highlights the need for targeted interventions to address the unique challenges of rural healthcare delivery. This could involve policies to incentivize healthcare workers to serve in rural areas, investments in rural health infrastructure, and the development of innovative service delivery models such as mobile screening units or community-based services. The study's findings on socioeconomic barriers suggest a need for policies that address the indirect costs of accessing screening services. This could include initiatives such as transportation subsidies, community-based screening programmes, or integration of screening services with existing community outreach efforts. The complex intersection of HIV and cervical cancer screening identified in the study calls for policies that promote integrated sexual and reproductive health services. This could involve developing guidelines for sensitive and comprehensive care for women living with HIV, including early and regular cervical cancer screening.

8.2.2 Theoretical Implications

This study contributes to the theoretical understanding of health-seeking behaviours and healthcare utilisation in rural, resource-limited settings. The findings align with and extend existing frameworks such as the Health Belief Model, highlighting the complex interplay between individual perceptions, sociocultural influences, and systemic factors in shaping health behaviours. The research underscores the importance of considering cultural beliefs and practices in health behaviour theories, particularly in contexts where traditional and modern medical paradigms coexist. The study's findings on the role of social networks and community influencers in shaping health behaviours contribute to social network theories in health promotion.

The identified intersections between HIV status, stigma, and cervical cancer screening add nuance to our understanding of how multiple health conditions and social factors interact to influence health-seeking behaviours. This complexity calls for more integrated theoretical frameworks that can account for the layered nature of health decisions in resource-limited settings.

8.2.3 Implications for Future Research

This study opens up several avenues for future research. Longitudinal studies could provide insights into how women's attitudes towards cervical cancer screening evolve over time and in response to different interventions. Such research could help identify the most effective strategies for promoting long-term engagement with screening services. Quantitative studies building on these qualitative findings could help quantify the relative impact of different barriers and facilitators to screening uptake. This could inform the prioritization of interventions and resource allocation in cervical cancer prevention programmes. Further research is needed to develop and evaluate culturally appropriate education and communication strategies for promoting cervical cancer screening in rural settings. This could involve participatory research methods to co-create interventions with community members.

The complex intersection of HIV and cervical cancer screening identified in this study warrants further investigation. Research exploring the experiences of women living with HIV in accessing integrated sexual and reproductive health services could inform the development of more sensitive and effective care models. Studies evaluating the effectiveness of different service delivery models, such as mobile screening units or community-based services, in increasing screening uptake in rural areas could provide valuable insights for programme implementation. Research on the long-term economic impacts of cervical cancer screening programmes in rural areas, including cost-effectiveness analyses and studies on the broader societal benefits of prevention, could help make the case for sustained investment in these services.

8.3 KEY FINDINGS AND CONTRIBUTION TO KNOWLEDGE

This study has made several significant contributions to the existing body of knowledge on cervical cancer screening in rural areas of low- and middle-income countries (LMICs). One of the most notable contributions is the integration of perspectives from both service users and healthcare providers, offering a holistic view of the challenges and opportunities in cervical cancer prevention. This dual perspective has revealed important areas of convergence and divergence in understanding and expectations, providing crucial insights for intervention design and policy development.

A key finding of this study is the complex interplay between individual, sociocultural, and systemic factors that influence cervical cancer screening behaviours and service delivery in rural settings. While some of these factors, such as limited knowledge and awareness, have been identified in previous studies, this research has provided a more nuanced understanding of how these factors interact in the specific context of rural Nigeria. For instance, the study has highlighted how traditional beliefs, and cultural practices intersect with modern medical paradigms, creating unique challenges for cervical cancer prevention efforts. The research has also extended our understanding of the psychological dimensions of cervical cancer screening in rural LMIC settings. The study has revealed deep-seated fears and anxieties among women, not just about the screening procedure itself, but also about the potential social consequences of a positive diagnosis. This finding stressed the need for interventions that address not only the physical aspects of screening but also the emotional and social dimensions.

This study makes a unique contribution by investigating the complicated interplay of HIV status and cervical cancer screening in rural settings. The importance of identifying the complex has contributed to new and original ways of knowledge generation to aid our understanding of the unique challenges faced by women living with HIV in accessing preventive healthcare services. This study has revealed how the different age criteria for cervical cancer screening among HIV-positive women can unintentionally lead to fears of status disclosure and heightened stigma, a nuanced finding that has not been previously explored in depth in the context of rural LMICs. For this reason, I consider that the strengths of the study outweigh its limitations and can usefully inform the practice of healthcare providers, policymakers, and programme implementers who genuinely want to support the 'being-in-the-world' of women living with HIV in rural areas and therefore, their overall health and well-being. This finding highlights the need for more sensitive and integrated approaches to HIV care and cervical cancer prevention, an area that has received limited attention in the existing literature. The study has also provided new insights into the challenges faced by healthcare providers in delivering cervical cancer screening services in rural areas. While previous research has often focused on systemic barriers such as lack of equipment or trained personnel, this study has highlighted the psychological burden on healthcare providers, including feelings of helplessness when confronted with advanced cases that could have been prevented. This finding underscores the need for interventions that support not only the technical but also the emotional needs of healthcare providers in resource-limited settings.

Another significant contribution of this research is the identification of potential leverage points for improving cervical cancer screening uptake and effectiveness in rural areas. The study has revealed the important role of community influencers, such as religious leaders and traditional communication channels, in shaping health behaviours. This finding extends our understanding of how social networks and community structures can be leveraged to promote health-seeking behaviours in rural settings. The research has also provided new insights into the economic dimensions of cervical cancer screening in rural areas. While previous studies have often focused on the direct costs of screening, this research has highlighted the complex economic calculations made by women, including considerations of opportunity costs and potential long-term economic consequences of a cancer diagnosis. This finding suggests the need for more comprehensive approaches to addressing economic barriers to screening uptake.

8.4 STRENGTH AND LIMITATION OF THE STUDY

8.4.1 Strengths of the Study

This study has several strengths that enhance its contribution to the field of cervical cancer prevention in rural settings. Firstly, the inclusion of perspectives from both service users and healthcare providers offers a comprehensive and balanced view of the challenges and opportunities in cervical cancer screening. This dual perspective allows for a nuanced understanding of how individual experiences and systemic factors interact to influence screening behaviours.

The qualitative approach employed in this study allowed for an in-depth exploration of the complex sociocultural factors influencing cervical cancer screening. The rich, contextual data obtained through in-depth interviews and focus group discussions provide insights that might be missed in quantitative surveys.

The focus on rural areas addresses an important gap in the literature, as much of the existing research on cervical cancer screening has been conducted in urban settings. The study's findings shed light on the unique challenges and opportunities for cancer prevention in resource-limited rural contexts.

The study's exploration of the interplay between HIV status and cervical cancer screening provides valuable insights into the complex healthcare needs of women living with HIV. This focus on a vulnerable population adds depth to our understanding of health disparities in cervical cancer prevention.

The use of Braun and Clarke’s thematic analysis allowed for a systematic and rigorous approach to data analysis, enhancing the credibility and trustworthiness of the findings. The identification of recurring themes across multiple participants and between service users and providers strengthens the validity of the results.

8.4.2 Limitations of the Study

Despite its strengths, this study has several limitations that should be considered when interpreting the results. The qualitative nature of the study, while providing rich insights, limits the generalisability of the findings to broader populations. The experiences and perspectives captured may not be representative of all rural women or healthcare providers in Nigeria or other similar settings.

The study's focus on a specific geographical area within Nigeria may limit its applicability to other regions with different cultural, economic, or healthcare contexts. Variations in local beliefs, healthcare systems, and socioeconomic conditions could influence the relevance of some findings to other settings.

The reliance on self-reported data introduces the possibility of recall bias and social desirability bias. Participants may have had difficulty accurately recalling past experiences or may have provided responses they believed were socially acceptable or expected by the researchers.

The focus group discussion with healthcare providers, while providing valuable insights, may have been influenced by group dynamics. Dominant voices could have shaped the discussion, potentially overshadowing alternative viewpoints.

The study did not include perspectives from policymakers or health system administrators, which could have provided additional insights into systemic barriers and opportunities for improvement in cervical cancer screening services.

The study's focus on women who had some level of engagement with the healthcare system (either through screening or other services) may have excluded the perspectives of the most marginalized women who have no contact with health services.

8.5 CONCLUSION

This study provides a comprehensive exploration of the factors influencing colposcopy cervical cancer screening services in rural areas, integrating perspectives from both service users and healthcare providers. The findings highlight the complex interplay of individual, sociocultural, and systemic factors that shape the accessibility, utilisation, and efficacy of screening services.

The research underscores the critical need for multi-level interventions that address not only individual knowledge and attitudes but also broader sociocultural influences and systemic barriers. Improving cervical cancer screening uptake in rural areas will require concerted efforts to enhance health education, address socioeconomic barriers, strengthen healthcare infrastructure, and develop culturally sensitive, integrated service delivery models.

This study aimed to elucidate the experiences, perceptions, and challenges associated with colposcopy-based cervical cancer screening among healthcare professionals and patients in rural Nigeria. The intentional focus on rural women was predicated on the hypothesis that these demographic faces significant barriers to accessing this critical healthcare service.

The research objectives were threefold:

- To describe the opinion and perceptions of patients towards colposcopy cervical cancer screening.
- To describe the experiences and perception of healthcare professionals on colposcopy cervical cancer screening in rural areas.
- To identify the possible challenges or barriers affecting colposcopy screening in rural settings.

The study employed a qualitative research design, utilising unstructured, in-depth interviews and focus group discussions with 59 participants, comprising healthcare professionals and women residing in rural areas of Rivers State, Nigeria. A Braun and Clarke's thematic analysis approach was adopted to interrogate the rich, contextual data gathered from these interviews.

The findings corroborated and extended the extant literature on colposcopy-based cervical cancer screening. The study revealed a complex interplay of sociocultural, economic, and infrastructural factors influencing the uptake and delivery of screening services. Novel insights emerged regarding the security concerns of healthcare professionals operating in rural areas and the profound impact of language barriers on trust-building between service providers and users. The research produced comprehensive, co-constructed narratives of rural women's lived experiences with cervical cancer and associated treatments, a significant contribution to the current body of knowledge. These narratives, developed through various discursive strategies, underscore the urgency of intensifying efforts to enhance the availability and accessibility of screening services, expand the healthcare workforce, and establish proximal healthcare facilities in rural areas.

Employing the Health Belief Model as a theoretical framework, the study illuminated the intricate relationship between individual perceptions of disease severity, susceptibility, and the perceived benefits and barriers to health-seeking behaviours. The findings suggest that rural women's risk perception and health behaviours are shaped by their understanding of cervical cancer, their recognition of the advantages of colposcopy screening, and their identification of obstacles to accessing and utilising screening services. The insights garnered from this research have significant implications for policy and practice. They can inform targeted interventions aimed at raising awareness, fostering understanding, and promoting participation in cervical cancer screening programmes. Moreover, the findings call for a multifaceted approach to address the identified challenges, encompassing improvements in infrastructure, healthcare professional training, and culturally sensitive health education initiatives. While the study has limitations, its findings provide a strong foundation for developing targeted interventions and policies to improve cervical cancer prevention in rural, resource-limited settings. The insights gained from this research can inform the development of more effective, context-specific strategies to enhance the accessibility, utilisation, and efficacy of colposcopy cervical cancer screening services.

Finally, this study makes a substantial contribution to the discourse on colposcopy-based cervical cancer screening in rural Nigeria by providing a nuanced understanding of the lived experiences of both healthcare providers and service users. It underscores the imperative for context-specific, patient-centred strategies to mitigate the burden of cervical cancer in resource-constrained settings. Ultimately, addressing the challenges identified in this study has the potential to significantly reduce the burden of cervical cancer in rural communities, improving women's health outcomes and contributing to broader goals of health equity and universal health coverage. Future research building on these findings can further refine our understanding and guide the implementation of effective cervical cancer prevention programmes in rural areas. Furthermore, future research should focus on developing and evaluating interventions that address the specific barriers and leverage the facilitators identified in this study. This could include pilot studies of mobile screening units, community-based education programmes, or integrated service delivery models. Additionally, implementation research is needed to understand how to effectively scale up successful interventions and integrate them into existing health systems.

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Appendix 1

Vignettes

Introduction:

Thank you so much for joining me today, it is really appreciated. We have discussed the consent already, but I just wanted to start with a quick introduction and explanation of what it is we will be doing today.

You do not have to take part and can still decide to leave, that is no problem. Please do understand that even if you want to stop in the middle of the discussion this is fine. This session will be audio-recorded. You can still withdraw your information two weeks after the interview. Later than that your information may have been analysed already but all effort will be made to filter out your information. Your direct quotations will not be used. We will be discussing for about one hour about my research topic. I really would like you to know that there are no right or wrong answers; I am just interested in hearing your views and understanding. If you have any questions about colposcopy or cervical cancer screening, it will be my pleasure to discuss it at the end of the interview, you can ask then anything you like. It is important to realise that this is meant as a safe environment, in which you can say anything without feeling judged (if applicable). You do not have to answer any of the questions and if you feel uncomfortable about anything we discuss please let me know.

I will be using a few stories today. These are made-up and are not from real people, but these are just to help you think about the topics and encourage some discussion. Please do feel free to add anything you want.

Do you have any questions before we start?

Let’s start with a question first:

Have you heard of colposcopy?

What do you know about colposcopy?

Let me read this story to you:

Scenarios 1:

Imagine Mary, a 30-year-old female from the Ahoada. She has one child who is 7 years old and lives with her mum in the Portharcourt. Mary has been in Portharcourt for 2 years and is working full time as a cleaner to earn money for her son’s education. Mary feels fit and healthy and has never seen a doctor in Hong Kong. Mary has never had colposcopy cervical cancer screening.

Questions:

What do you think Mary should do about colposcopy cervical cancer screening? Why do you say that?

Interview questions

Scenarios 2:

Imagine Joy, she is a 45-year-old female from the Abua and has been overseas for 10 years. She has two children who are now in their teens. Joy has had a colposcopy but felt so embarrassed about the whole situation that she has not gone back. Joy knows that having regular colposcopy screening is important however she worries about finding out she may have cancer, and this stop her going back for the screening. She thinks that if it is found out she has cancer she will die, and she cannot send money home for her two children.

Interview questions continue

Closing:

Would you like to say anything else?

Do you have any questions?

Thank you so much for participating.

Appendix 2

Phase 1: In-depth Interview Protocol for Service Users in Rural Areas

Thank you for participating in this survey. Your responses will help us improve cervical cancer screening services. Please answer the following questions based on your knowledge and experiences.

1. Knowledge and Awareness
   a) What do you know about cervical cancer and colposcopy?
   b) Can you describe what happens during a colposcopy procedure?
   c) How important do you think colposcopy is for cervical cancer prevention?

2. Information and Communication
   a) How clear was the information provided about colposcopy?
   b) Were the instructions for the procedure easy to understand?
   c) What suggestions do you have to improve communication about colposcopy?

3. Attendance
   a) Have you ever had a colposcopy? (Yes/No)
   b) If yes, what motivated you to attend?
   c) If no, what were your reasons for not attending?

4. Screening Experience (for those who have had a colposcopy)
   a) Please describe your overall experience with the colposcopy procedure.
   b) How satisfied were you with the service provided?
   c) Would you attend future screenings when invited? Why or why not?

5. Motivations (for those who haven't had a colposcopy)
   a) What would encourage you to attend a colposcopy screening?
   b) What factors would make you more likely to participate in future screenings?

6. Perceptions and Beliefs

a) What are your thoughts or beliefs about colposcopy and cervical cancer screening?

b) Do you have any concerns about the procedure or its importance?

7. Barriers and Challenges

a) What obstacles do you think prevent women from participating in colposcopy screenings?

b) Do you have any concerns about healthcare providers involved in colposcopy services?

8. Suggestions for Improvement

a) How do you think the colposcopy screening process could be improved?

b) What changes would make the screening more accessible or acceptable to women?

c) Do you have any suggestions for improving the screening venue, staff, or information provided?

9. Personal Motivation

a) What specific actions or changes would encourage you to attend a colposcopy screening in the near future?

10. Additional Comments

a) Do you have any other thoughts or experiences related to cervical cancer screening or colposcopy that you'd like to share?

Thank you for your time and valuable input. Your responses will help improve cervical cancer screening services.

Appendix 3

Ethical consideration

Title of study: *Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural Nigeria'*.

Principal researcher: Azubuike Ikemeafula Amadi

Email: 21453788@student.uwl.ac.uk

Researcher place of study: University of West London, Ealing Broadway London, W5 5RF

Study description: The main aim of the research is to develop a better understanding of colposcopy screening practice and its effect on utilisation among women in River state of Nigeria.

Purpose and safety of study: Your participation will aid in exploring the perception and challenges of colposcopy screening services in Nigeria. This research was approved by the University Research Degrees Sub-committee (URDSC) at the University of West London.

Research procedure: The procedures include.

1. Systematic literature review.

2. In-depth interviews will be held with service users, lasting between 45-60 minutes.

3. Two Focus Group Discussions with service providers. This will be a one-off activity that will involve 9 participants each. The meetings will last between 60-90 minutes.

Foreseeable risk: There are no foreseeable risks in these activities.

Benefit to the subject or others: Your participation will be helpful towards fulfilling the researchers aim to study.

Questions and Inquiry: for further inquiries, you can contact the researcher on the attached email address.

Confidentiality and retained data: All information will be stored in accordance with the 2018 General Data Protection Regulation and kept strictly confidential. Any identifiable data will be stored separately in a password-protected file and will be securely disposed of as soon as it is no longer necessary, and within 5 years.

Research consent form for participants

It is very crucial that participants understand the purpose, the procedure, the benefit of the research and how data will be used. Thank you for your interest in this study. Please read the attached briefing information carefully.

As part of ethical consideration, this form must be filled in before engaging in the research study.

1. I confirm that I have read and understood the attached briefing sheet.

2. I understand that I have the right to withdraw at any given time without prior notice.

3. I understand I may or may not participate in the feedback session of the study.

4. I understand that recordings will take place during interviews.

5. I give the researcher my consent to partake in the study.

Name of participant…………………..... Signature………………Date………………….

Name of researcher………………………………. Signature …………...Date……….

Appendix 4

UNIVERSITY OF WEST LONDON

RESEARCH DATA MANAGEMENT STATEMENT

As a student or member of staff undertaking a research project, I understand that I am responsible for the following:

- Not collecting data prior to ethical approval.
- Maintaining accurate records of the methodologies used and the results obtained throughout the research project.
- Ensuring research data is kept in a manner that is compliant with legal obligations, the University Research Data Management Policy, the Research Ethics Code of Practice and the University Data Protection Policy and where applicable the requirements of funding and professional bodies.
- Ensuring backups of data and documents are made and updated at regular intervals during the research project.
- Ensuring anonymisation of research data containing personal information at the point of collection where possible. Where personal data cannot be anonymised, all identifying information must be removed from working files and kept separate in locked filing cabinets/files or secure password protected electronic folders. Working files must not contain identifying information.
- Transcribing all video and/or audio data using codes or pseudonyms for the identification of individuals.
- Ensuring the storage of confidential or personal data, particularly special category research data, is treated with care and is made accessible only to

authorised people. Electronic folders containing personal data will be password protected. Electronic folders containing special category data will be encrypted **and** password protected. This relates to information concerning a subject's racial or ethnic origin, political opinions, religious beliefs, trade union activities, physical or mental health, sexual life, or details of criminal offences.

- Ensuring secure physical storage of personal and/or sensitive personal data in lockable cabinets.
- Not re-using data for a different purpose unless separate ethical approval is given.
- Ensuring secure disposal of research data in accordance with legal, ethical, research funder and collaborator requirements.
- Unless otherwise required, disposing of research data after the following periods
    - UG Students – to be destroyed once marks are ratified by the Assessment Board
    - PG Taught Students – as above unless the project is going to be published (in which case it should be retained for five years)
    - Staff and Research Students– after 10 years or five years after publication whichever is the greater.

Name: Azubuike Ikemeafula Amadi

Application ID: 21453788

Project title: *Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural Nigeria'*.

Appendix 5

UNIVERSITY OF
WEST LONDON

Participant Information Sheet

***Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural Nigeria'*.**

You are being invited to take part in an exploration of perception and challenges of colposcopy cervical cancer screening Project. Before you decide it is important for you to understand why the exploration is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

***Thank you for reading this*.**

1) What is the purpose of the study?

The main purpose of this research is to develop a better understanding of colposcopy screening practice and its effects on utilisation among women in Rivers state of Nigeria.

2) Why have I been chosen?

You have been asked to participate because your participation will aid in exploring and understanding the true perception and barriers of colposcopy screening utilisation and we would like to hear your perceptions, observations and challenges concerning the cervical cancer screening services.

3) Do I have to take part?

It is up to you to decide whether to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason.

4) What will I be asked to do if I take part?

You will be asked to participate in a group interview called a focus group. The group is normally between 8-12 people who have a common interest and can inform an area of concern. A focus group is used to provide insights into attitudes, perceptions and opinions of the participants. The interview will last for one hour at the most. If you agree to participate you will be sent a briefing sheet that will outline the areas that will be discussed at the interview.

It is important that we keep an accurate record of your opinions and therefore we will be recording the discussion. We will only use first names during the discussion and no names will be attached to comments that may be used in the final report. You will be sent a copy of the focus group report to comment on its accuracy and the conclusions drawn by the researchers.

5) What will happen to the results of the research study?

The results of this phase of the evaluation will be used to provide clarity and validity to the subsequent phases of the study. The group interviews will be used to develop a working definition for use in the second part of this phase which will take place from March-June 2004.

6) Who is organising and funding the research?

The exploration is self-funded research in pursuit of my PhD Health at the university of west London.

7) Who has reviewed the study?

This study has been reviewed by the College of Nursing, Midwifery and Healthcare.

8) Contact for Further Information

If you would like any further information, please contact any one of the Lead Research Co-ordinators listed below:

Name of Researcher, email and telephone number

9) If you wish to raise concerns about the conduct of this study please contact:

Dr Muili Lawal

Muili.lawal@uwl.ac.uk

+447877518067

Appendix 6

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WEST LONDON

CONSENT FORM

Non-therapeutic Research - Healthy Volunteers

Title of Project: *Healthcare professionals and women's experience and perception of colposcopy method of cervical cancer screening in rural Nigeria'*

Name of Lead Investigator(s): **Azubuike Ikemeafula Amadi**

Principle Supervisor: **Prof Muili Lawal**

Second supervisor: **Prof Hafiz Khan**

Please initial box

1. I confirm that I have read and understand the information sheet dated < > ☐

   (Version ....) for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, ☐

   without giving any reason.

3. I agree to take part in the above study. ☐

4. **This type of statement is only needed if you are using an intervention that may have physical or psychological effects.**

   I confirm that I have disclosed all medical conditions and that I have not previously ☐ experienced any adverse effects from < type in the proposed intervention e.g., strenuous exercise/ caffeine. >

5. **If you are recording interviews, you should add a statement along the lines of:**
   I understand that my comments will be digitally recorded and that anonymised verbatim quotes will be used in the final report.

Name of Participant	Date	Signature
Name of Person taking consent (If different from researcher)	Date	Signature
Researcher	Date	Signature

Participants should sign two copies of this form. Researchers should retain 1 copy for safe and secure storage (scanned and held in a password protected file on a secure server) Participants should retain the second copy along with a copy of the Participant Information Sheet for their records.

Appendix 7

GOVERNMENT OF RIVERS STATE OF NIGERIA

HEALTH RESEARCH ETHICS COMMITTEE

RSHMB/RSHREC/2022/021 7th June, 2022.

Azubuike Ikemeafula Amadi
Researcher.

ETHICAL APPROVAL

Your application for ethical approval of research proposal titled: **"Healthcare Professionals and Patients experience, perception and challenges of colposcopic cervical cancer screening among rural women in Nigeria"**, refers.

After a critical appraisal of your proposal by the Rivers State Health Research Ethics Committee, full ethical approval is hereby given to you to commence your study.

Note the committee reserves the right to withdraw this approval if at any time during the conduct of the study you infringe on the ethical regulations as enshrined in the ethical code.

Dr. Ishmael D. Jaja
Chairman, Health Research Ethics Committee

RIVERS STATE HOSPITALS MANAGEMENT BOARD
26 Okoroma Street, P.M.B. 6083, Port Harcourt, Nigeria
Tel: 084-230828, Email: rshmbph@yahoo.com

Appendix 8

UNIVERSITY OF WEST LONDON
The Career University

College of Nursing, Midwifery and Healthcare

Research Ethics Panel

Paragon House

Boston Manor Road

Brentford TW8 9GA

Name: Azubuike Amadi
Student No: 21453788
Date: 11th August 2022

Re: Application for Ethical Approval No. 01255
Healthcare professionals experience, perception, and challenges of colposcopic cervical cancer screening among rural women in Nigeria

Dear Azubuike

Thank you for sending in your application for approval. The Panel has considered this and approved the research without major amendment. However, the following changes are required:
Please add the following to your proposal:

1. The participants will be recruited using both electronic (text messages, telephone calls and social media) and hard copies (postal).
2. Please ensure contact details are obtained and used during the recruitment process only for the purpose of this research study – that is contact details that have been previously given for any other reason must not be used without the participant's consent.

If the research does not progress, or if you make any changes to your research proposal or methodology can you please inform the Panel in writing as this may entail the need for additional review. It is your responsibility, as the principal investigator, to submit a report on the progress/completion of the research twelve months from the date of this letter. Please find attached a blank report form to be completed by
August 11th, 2023.
The Panel wish you well with your research and look forward to your report.
Yours sincerely

Dr Claire Anderson
Head of Workforce Development

Appendix 9

The data extraction form

Data Extraction Form for Systematic Review of healthcare professionals and women's experiences and perceptions of colposcopy method of cervical cancer screening in Nigeria.

Reviewer Details	
Date	
Does the paper meet the inclusion criteria? If no, explain further	
Does the paper meet the exclusion criteria? If yes, explain further	Reasons for exclusion may include irrelevant titles and abstracts (e.g.: not related to colposcopy, healthcare professionals and women, not in English language full paper not available, or insufficient data, not between 2010-2023.
Study Details	
Study Title	
Author(s)	
Year	
Journal	
Aim and objectives of the study	
Study Aims	
Objectives	
Methodological Characteristics	
Study Design	
Setting	
study inclusion criteria	
Exclusion Criteria	
Duration	
Recruitment procedure used	
Sample size	
Data collection Tool(s)	
Method of Data Analysis	
Outcomes	
Ethical Approval	
Results	
Healthcare professionals and women characteristics	
Details of relevant outcome measures and summary outcome data (Key results)	
Conclusions	
Recommendations	
Limitations of the study	

Appendix 10

JBI Critical Appraisal Checklist for

systematic reviews and research syntheses

Reviewer____

Date_________________________________

Author____Year_________ Record Number_________

	Yes	No	Unclear	Not applicable
1. Is the review question clearly and explicitly stated?	□	□	□	□
2. Were the inclusion criteria appropriate for the review question?	□	□	□	□
3. Was the search strategy appropriate?	□	□	□	□
4. Were the sources and resources used to search for studies adequate?	□	□	□	□
5. Were the criteria for appraising studies appropriate?	□	□	□	□
6. Was critical appraisal conducted by two or more reviewers independently?	□	□	□	□
7. Were there methods to minimize errors in data extraction?	□	□	□	□
8. Were the methods used to combine studies appropriate?	□	□	□	□
9. Was the likelihood of publication bias assessed?	□	□	□	□
10. Were recommendations for policy and/or practice supported by the reported data?	□	□	□	□
11. Were the specific directives for new research appropriate?	□	□	□	□

Overall appraisal: Include □ Exclude □ Seek further info □

Comments (Including reason for exclusion)

70% above = High, 50-70 = Medium, below 50= low

APPENDIX 11

Phase 2 (Focus Group Discussion Guide with service providers)

- Opening remarks
- Introduction
- Setting rules and regulations
- Group interaction

Question template for service providers

1) What are your experiences and beliefs on colposcopy cervical cancer screening among women in rural area?
2) What limitations do you think can affect your practice or role in providing effective colposcopy screening in your settings?
3) In your opinion, what do you think are the possible barriers affecting the utilisation of colposcopy screening services among women in your settings?
4) What can be done to improve your practices and utilisation of colposcopy screening in rural area?

- Closing

Appendix 12

Transcription of the In-depth Interview with women regarding colposcopy cervical cancer screening experience and perception

W 1

Interviewer: How old are you?

Respondent: 36 years old

Interviewer: What is your HIV status?

Respondent: Negative

Interviewer: Have you heard of cervical cancer?

Respondent: Yes, I have heard, I have even done cervical cancer screening

Interviewer: What do you know about cervical cancer?

Respondent: It is an infection when a lady has more than one sexual partner

Interviewer: Have you gone for colposcopy cervical cancer screening?

Respondent: Yes, I have gone for the screening

Interviewer: When did you go for the colposcopy cervical cancer screening?

Respondent: I went for the screening two years ago

Interviewer: Can you tell me about the procedure and screening done on you?

Respondent: I lay down and they used something like tube inside my vagina, then I was ovulating, and the result was negative

Interviewer: What motivated you to go for the screening?

Respondent: That day they were celebrating World HPV Day, so I went for the screening

Interviewer: How do you feel going for the colposcopy cervical cancer screening?

Respondent: It was okay, it was normal

Interviewer: Before they carried out the screening, did they explain the procedure for you?

Respondent: No, I wasn’t given any information

Interviewer: How will you describe the procedure and screening done on you or the entire process to another person?

Respondent: It is good for all women to go for the screening

Interviewer: How satisfied are you with the overall screening?

Respondent: For the screening I will give it 100%

Interviewer: After the first screening, were you invited for another screening?

Respondent: No

Interviewer: What are your perceptions or beliefs about colposcopy cervical cancer screening?

Respondent: none

Interviewer: What do you think prevents other women from going for the screening even if is free?

Respondent: Ignorance is a key factor that makes women not to go for cervical cancer screening. There is a need for more information and awareness program

Interviewer: What improvement do you want to see in the colposcopy cervical cancer screening program? In terms of venue, screening information, staffing?

Respondent: There is need to create more awareness to increase the uptake of cervical screening among women

Interviewer: Thank you for your time

Appendix 13

Transcription of Focus group discussion with service providers

Q1. Interviewer: What are your experiences and beliefs on colposcopy cervical cancer screening among women in rural area?

HP 1: Colposcopy is a very important procedure especially in the early detection of cervical cancer. Although in the rural areas, one of the major challenges in convincing people, for them to agree by giving consent. But I think with constant advocacy and public health enlightened and talks that these women get from the health centers presenting themselves for colposcopy wasn't a difficult thing, it wasn't a big issue so many of them freely came to the health centers to be screened for them to undergo colposcopy. So, I think by and large most people after education by and large so many persons saw the need to give consent for colposcopy even though they had their traditional belief. They came for colposcopy, and it was done for them.

HP 2: Most of the people in the rural areas are not aware of cervical cancer, nor are they are aware of a screening method; they really do not have any belief system concerning it. However, when you tell them about a condition that can lead to cancer, of course their attitude is like every typical African person and is usually a form of response of "is not my portion", this response is not unique to cervical cancer, is just a similar response to general health conditions, is not my portion. The other question is on the experience, of course most of the women in the rural areas we communicate with them with English language, most of the women will be willing to listen to your counseling and health lectures on cervical cancer and of course most of them despite the motivations to come are reluctant to come and accept treatment or screening. And this reluctance is not only on cervical cancer but on the general attitude towards health.

Of course, most health care facilities in the rural areas in Rivers state also have poor manpower; poor facilities and some areas have high level of insecurities

Appendix 14

Participants Debriefing document

Colposcopy explained

A colposcopy is the magnified visual inspection of the cervix to check for any changes or abnormalities. It is usually performed after an abnormal Pap test result or a positive HPV test.

Before colposcopy:

- Avoid using vaginal medication, personal lubricants or douches for 48 hours before the colposcopy.
- Refrain from vaginal sex for 48 hours before your appointment.
- Schedule your appointment on a day when you do not have your period.

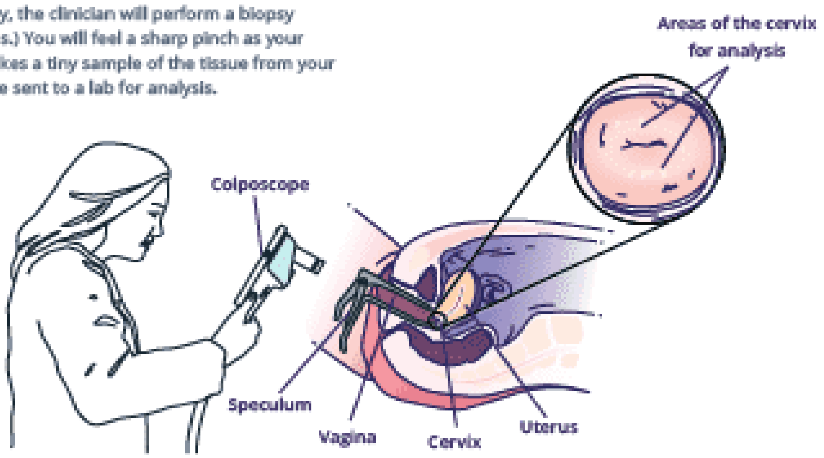
How does it work?

- You will lie on a hospital bed with your feet in the stirrups and your knees in the air.
- You will feel some pressure as the clinician inserts a speculum into your vagina.
- Next acetic acid will be applied to your cervix with a swab (like a big Q-tip.) You might feel a slight burning sensation.
- Your clinician will then use a colposcope to shine a bright light on your cervix and magnify the image so any problematic cells can be clearly seen.
- If necessary, the clinician will perform a biopsy (or biopsies.) You will feel a sharp pinch as your clinician takes a tiny sample of the tissue from your cervix to be sent to a lab for analysis.

After colposcopy:

- Your vagina might feel a little sore for a few days after the colposcopy. You might feel cramping, similar to menstrual cramping.
- If you had a biopsy then you will probably experience some bleeding immediately afterwards, with slight spotting or dark-colored discharge for a few days afterwards. You can use a pad or panty-liner. Avoid using tampons.
- You can shower as soon as you want (but wait 24 hours before taking a bath)
- Wait 24-48 hours to have vaginal sex or until bleeding stops if you had a biopsy.
- Contact your doctor if you experience heavy bleeding, have smelly vaginal discharge or a fever.

Your doctor will be in touch with the outcome of any further tests and will walk you through the next steps of your treatment plan.



This material is based on the ASCCP guidelines. For more information visit www.acog.org/Patients/FAQs/Colposcopy

EVA System